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AGRICULTURE NOW?

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Clearly the first step toward a logical solution of the problem which Dr. Nourse has raised, is to obtain an accurate description of *the condition of agriculture now,* and of the *direction of current trends.* No description of any period is significant that does not recognize the changes then under way. This is fully as true if the period is the present as for an earlier period. The only way to discover the trends under way at present is to take a look backward and see what has been happening.

This, said the writer to himself, will be an easy task. There have been so many studies made and so much has been said and published along this line in the last few years that all he will need to do is to go through this material hurriedly and sort out the particular facts and figures which he will need for his foundation, and then proceed to build his superstructure. But lo! after a space of time far longer than reasonable for the whole undertaking, and discussion and tables more voluminous than the space of one article affords, he discovered himself still busy on the foundation—still sorting for suitable materials, still chiseling at irregular data to make them fit.

[1] On leave of absence from the University of Minnesota. This paper is published with the approval of the Director as Paper No. 695 of the Journal Series of the Minnesota Agricultural Experiment Station.

Editor's Note: This paper has been written by Dr. Black as a continuation of the discussion of the issues raised in Dr. Nourse's paper on the "Outlook for Agriculture," published in the January, 1927, issue of this Journal.

Hence the job has never got beyond the foundation; and some one else will have to rear the superstructure. This article therefore confines itself to "Agriculture Now," which, as explained above, includes the direction of prevailing trends, as determined by an examination of recent developments.

The first of the several more or less exhaustive studies of the agricultural situation to see the light of day made its appearance when that light was still greatly obscured by the clouds and mists of the dark days of 1921 and 1922. Congress, ever alert to the needs of the people, sensed the awful calamity that had befallen agriculture, and appointed a "Joint Commission of Agricultural Inquiry" to discover the causes of it, and suggest needed legislation. But although the report of the Commission fills four small volumes, only the first four chapters of Part One are devoted to describing agricultural conditions. Moreover, the final conclusions of this part of the analysis are based on data mostly taken bodily from Volumes I and II of "Income in the United States" just then being published by the National Bureau of Economic Research. There is the table from page 63 of Volume II of that report which gives $444 as the average rewards of farmers in 1913, and only $833, in dollars of 1913, for 1919, the best year our agriculture has ever had, and other data from Table 26 of Volume I giving annual earnings of all persons engaged in agriculture as being just about half the average for all industries—$328 in 1913 as compared with $723 for all industries. To test the validity of these comparisons, one needs to go back to the studies from which they are taken.

The second study to appear was Warren and Pearson's "Agricultural Situation." The readers of the Journal are thoroughly familiar with it. Its description of conditions is mostly relative—and relative to the pre-war period. Little is said about agriculture relative to the rest of society, which is the major problem in this paper.

The third study is that of the National Industrial Conference Board, published in 1926 under the title, "The Agricultural Problem in the United States." The startling conclusion in this report, namely, that agriculture in the United States took a turn for the worse about 1900, and has been getting worse ever since, and only especially worse since 1920, was

obtained principally as a result of two parallel lines of attack on the problem, one an attempt to trace the changes in the ratio of the share of the National Income received by agriculture to the proportion of the working population on farms; and the other an attempt to trace the balance between prices and costs of production of farm products. The first of these methods of attack was borrowed whole, and likewise most of the data, from the studies of income made by the National Bureau of Economic Research. It would appear, therefore, since two of these studies base important conclusions on data provided by the National Bureau of Economic Research, that the first task of the writer is to examine these data and see how they have been derived.

The Income Analysis of the National Bureau of Economic Search

It is not the objective here to present a "review" of the income studies of the National Bureau of Economic Research.* A "review" attempts to evaluate a piece of work, point out its achievements and failures, and strike a balance between them. It is conceded that these income studies have been of great value in many ways. The makers of them have shown great ingenuity in piecing together fragments of incomplete data, and unusual care in selection of data. The objective here is rather to examine the data that relate to the problem at hand, and see what truth we can discover in them for our purposes.

The particular figures needed for our purposes have been taken from Volume II of the studies. They are combined in the table on page 140.

The distinction between the first two and the last three columns of this table is not at first clear. The second column is really an index of *physical volume of product,* obtained by adding the *gross* values of crops and livestock and dividing by a weighted index of the prices of these products for the same years. The values in Column VI are *net,* but include some

*These income studies have been published in four volumes as follows:
"Income in the United States," 1909-19, Vol. I, Summary, by W. C. Mitchell, Wilford I. King, Frederick R. Macaulay, and Oswald W. Knauth. 1921.
"Incomes in the United States," 1909-19, Vol. II by the same authors. 1922.
"Distribution of Income by States, 1919, O. W. Knauth. 1922.
"Income in the Various States, 1919, 1920 and 1921," by Maurice Leven, with a "Preliminary Statement" by W. I. King. 1925.

Year	(I) Gross value of all farm products (crops and livestock) (Millions) At current price	(II) At 1913 price	(III) Number of farmers (Thousands)	(IV) Number of persons engaged in agriculture (Thousands)	(V) Net value of farm products per person engaged in agriculture	(VI) Net value product of agriculture at current prices (Millions)	(VII) Purchasing power of net value product of agriculture (Millions)	(VIII) Purchasing power of net value products per person engaged in agriculture
1909	$4,980	$5,375	6,330	8,706	$617	$4,686	$4,920	$565
1910	6,973	6,359	6,362	8,741	727	5,728	5,680	671
1911	5,553	6,085	6,376	8,764	694	5,368	5,460	623
1912	5,401	5,999	6,388	8,778	683	5,286	5,320	606
1913	5,960	5,960	6,400	8,794	678	5,887	5,890	671
1914	6,179	6,481	6,410	8,803	736	6,040	5,980	680
1915	6,513	6,741	6,418	8,800	766	6,376	6,220	707
1916	7,581	5,590	6,425	8,798	635	7,249	6,610	751
1917	10,331	5,642	6,432	8,720	647	9,720	7,590	871
1918	13,308	6,733	6,438	8,559	786	12,682	8,190	953
1919	15,590	7,117	6,443	8,663	821	14,835	8,490	984
1920	10,976	6,485	6,448	8,814	777	9,853	4,640	526

All data from Volume II, **Income in the United States.**

Column I. From Table 3—P, Column B and Column E.

Column II. From Table 3—P, Column H.

Column III. From Table 3—Q, Column B.

Column IV. From Table 3—Q, Column D.

Column V. From Table 3—Q, Column G. Column II ÷ Column IV.

Column VI. From Table 3—O, Column B.

Column VII. From Table 3—O, Column F. Derived from Column B by dividing by an index supposed to represent prices of consumers' goods used by farmers. It is an average of indices of purchasing power for working classes and well-to-do classes weighted 3 and 1 respectively.

Column VIII. Column VII ÷ Column IV.

allowance for increase in inventory due to land and buildings improvements. Column VII reduces these to a purchasing power basis by dividing them by an index of prices of the consumers' goods supposed to be used by farmers.

If Column VII above is divided by the number of persons engaged in agriculture (Column IV), the result will be the *purchasing power of the average net income per person,* assuming no rent is paid and no mortgage interest. The figure will be $565 for 1909; $984 for 1919, and $526 for 1920. Dr. King has estimated the rent and mortgage interest payments of farmers at $1,248,077,000 in 1919 (page 213, Income in the various states). This equals $144 per person in agriculture. For the year 1909, the average would have been about $55. This leaves $510 for 1909, and $840 for 1919, in dollars of 1913, as the amount available for living, farm improvements, new equipment, and payments on the principal of mortgages. Against these figures are set, in other chapters, such purchasing powers, in dollars of 1913, as the following:

(See Table 20, Volume I for a summary).

	1909	1918
Employees, all industries	$656	$682
Employees, manufacturing	597	726
Employees, mining	627	812
Employees, transportation	688	814

But it must be remembered, it is pointed out, that most of these farmers have a considerable investment in their farm enterprise, and these $510 and $840 include return upon this as well as wages of labor—and still more important, wages of management, for are not these farmers entrepreneurs?

It will be impossible in the brief space of this paper to point out all the things that are wrong with the above figures considered as indicators of the purchasing power of farmers. The following are the important ones:

1. While "purchasing power" computed as in Column VII, by deflating by an "index of prices of goods consumed by workers and well-to-do families," may serve in very rough fashion as a measure of change over a period of years, *it will not serve for determining the purchasing power of farmers' incomes,* and it is frequently so used in these income studies. The income figure for farmers includes an estimate of around

$420 in 1909—roughly half of the net income—for the value of the food, fuel and housing furnished the farm family from the farm: *and all of these are valued at the farm.* An index of relative purchasing power of farm incomes must reckon this large part of the farm family's expenditures on the basis of prices at the farm. Or if the same index of purchasing power is to be used, then the value of the goods furnished the family by the farm must be valued at what they would cost in the city.

Now it cannot be said that Dr. King and his associated nowhere recognize this problem. Dr. Leven makes specific mention of it, and even suggests that *"one would apparently have to raise the farmer's money income at least one-third in order to compare it with urban incomes."* But he nowhere does so raise them, seldom makes further reference to the circumstance, and if he does mention it, it is only to disparage it. None of the tables in either King's or Leven's reports that are important for agriculture makes any mention of this extremely significant qualification.

Dr. King is surely not to be rebuked for not trying to determine the relative purchasing power of farm and urban incomes. It is the sort of thing that never can be done with satisfactory precision. Take housing as an example: Is an eight-room house on a farm with all modern conveniences the equivalent in living value of a similar house in a good residence district in town? Is a house without a furnace and water system worth no more relatively in the country than it would be in the city? Even in the matter of food, there are difficulties: urban families do not ordinarily consume so many calories as farm families of the same size. On the other hand, farm families need less of expensive clothing. Then there is a large group of more intangible values involved—the advantages of living close to good schools, churches, doctors, hospitals, theatres, libraries, vs. the advantages of clean air, more sunlight, and more quiet. Nevertheless, anyone who broadcasts figures purporting to show the relative well-being of farmers and urban people must in the interest of the truth carefully list all of their omissions and qualifications and even make some sort of a rough evaluation of them.

If this were carefully done in the years 1919, 1920 and 1921, a number of items would appear of which Funk, Goldenweiser and others who have estimated the value of the living obtained from the farm have taken no count. Except in the essentially sub-marginal agricultural regions, the great majority of farm families have automobiles. In the form in which many calculations are made, the upkeep and maintenance of the automobile is provided largely by the farm end of the business. The use of the automobile by the family represents present income out of past investment the same as use of the family dwelling. King and Leven provide for this item as far as the upkeep and maintenance are concerned, but not for the rest. Knauth in his approach to the problem from the income side leaves the automobile out almost altogether as a result of using Funk's 1909 figure of $421 as the value of the living furnished by the farm. The cost of owning and operating an automobile in the city may be conservatively estimated at $400 a year. Probably a larger part of urban use than of rural use of automobiles is for the family and household; but one cannot be sure of this.

The value at nearby city prices of the food supplied by the farm to 357 average Minnesota farm families in 1924 was approximately $700. This result obtained by survey method checks closely with results obtained on detailed cost routes in the same years. The rent of an equivalent city home would be at least $400. The saving in fuel, clothing, water, gas, light and telephone, carfare, automobile and garage, either as a result of having these furnished by the farm, *or from not having them,* would be at least $700, and it might be $1,000. These families spent an average of $939 on food, clothing, house furnishings and the like purchased in town. This makes a total of at least $2,740 that the farm families would need if they moved to the city. That part of the saving of $700 which comes from not having all the things that city people have, cannot all be cast aside: Some are not needed on the farm, or are offset by other advantages. On the other hand, some things, such as heat and lighting, that country people need as much as city people cost more in the country.

2. In Column V, Dr. King draws his conclusions as to the relative real incomes of persons engaged in agriculture from

Column II, which is really only a measure of physical volume of product, in place of from Column VII, which gives *purchasing power* of *net income*. This makes it appear that agricultural workers' incomes are lower than those of factory and railway employees, even before interest on short-time loans, insurance, and costs of machinery, fertilizer, twine and other farm supplies have been deducted (page 61, Income in the United States, Vol. II). Column V is therefore seriously wrong. Column VIII, which is what was wanted, shows that in 1918, assuming the data as otherwise all right, the purchasing power of farm workers was equal to that of the other groups named, *after* the above-named deductions were made; but not in the pre-war years.

3. There is abundant reason for believing that the National Bureau of Economic Research gross income figures for agriculture are appreciably too low because based almost altogether upon the census figures. That the census figures are low is familiar to all who have worked with them. Even in careful survey work, it is difficult to keep serious errors of omission from creeping in. For many of the major products—cotton, for example—checks are available, and in these cases, the Census Bureau has usually been able to adjust its returns. It is in the long list of miscellaneous items for which no checks are available that the errors are most serious—such items as the following: Amounts and value of animals slaughtered on the farm, amounts and value of poultry and eggs produced and consumed at home, similar items for dairy products, sales of timber products. No data are available as to receipts from labor off the farm, or from outside investments.

The best evidence that the census figures are low is found in the statements made by the Census officials themselves. The following is a characteristic example: "In many instances, even when farmers make replies to all inquiries, it is probable that they understate the production, particularly by neglecting or understating the home consumption of milk and other dairy products." (Abstract, 1910, page 343; see also page 353.) A few acknowledgments of this sort scattered through the pages of these income studies would have lent much grace to them.

4. The fourth objection to the foregoing income analysis is that the authors of it neglect to explain that the relatively low average incomes for agriculure are in considerable part a simple matter of geography. In the following simple table it appears that 52 per cent of the farm population of the United States live in the 14 Southern states, where, on the basis of the Bureau of Economic Research's own figures, all incomes are low, whereas 80 per cent of the non-farming population live in the remaining 32 states where all all incomes are relatively much higher.

	Fourteen Southern States	Rest of the United States
Per capita current income of farm population	$260	$470
Per capita current income of non-farming population	570	760
Percentage of the farm population of the United States	52	48
Percentage of the non-farm population of the United States	20	80

All of the foregoing objections suggest that the income figures for farmers presented by the National Bureau of Economic Research err in the direction of making farm people appear much worse off than they really are. Both the Joint Commission of Agricultural Inquiry and the National Industrial Conference Board have taken them at their face value, and have spread them far and wide over the country. The writer will concede freely that the farming population of the United States, taken as a whole, has not been receiving its share of the national dividend since 1920; that it was not even receiving its share in the glorious days of 1910 to 1914, and probably not even in 1918 and 1919. But farm people are not mostly "boobs" and ignoramuses—as they surely would be if in spite of an income and purchasing power as low as indicated by these figures they had stayed on the farm all these years. No doubt a full and fair presentation of the case would make farm life look disheartening enough.

The Farmer's Share in the National Dividend

The authors of these studies then push on to such far-reaching and significant conclusions as the following: "*It is a fact worthy of comment that while about thirty per cent of the*

gainfully employed persons in the United States are engaged in agriculture, the industry normally receives only about seventeen per cent of the income." (Page 62, Income in the United States, Vol. II.)

It would appear from what we have said above that if farm incomes and urban incomes were reduced to a common purchasing power basis, if proper additions could be made for the omissions and deficiencies of the census data, and if city and farm incomes could be reduced to a common geographic basis, city incomes in the South against rural incomes in the South, and city incomes in the North against rural incomes in the North, the 17 per cent would be very considerably increased, easily as much as a third.

Then there is a mis-statement in the matter of persons gainfully employed. The 1920 census figure is 26.3 per cent and not 30 per cent. This needs to be raised a little to compensate for the change in the date of taking the census, but surely not to 30 per cent. Only 29.5 per cent of the total population was living on farms in 1920. Since there are relatively more children and fewer adults in the country than in the city, a larger percentage of the population than of the gainfully employed are attached to agriculture. The exact figures are: For every 1,000 persons in the city between the ages of 20 and 44 there were 648 children under 15 years of age in 1920; for every 1,000 in the rural districts in the same age groups, there were 1,204 children under 15 in 1920.

There is even a non-comparability in the census figure of 26.3 per cent for gainfully employed. A much larger percentage of farm children than of city children under 17 years of age get counted as gainfully employed. In 1920, 10.4 per cent of the persons reported as gainfully employed in agriculture were 17 years old and under. The comparable figure for agriculture and other industries combined was 6.7 per cent. If no larger proportion of children of 17 or under were counted for agriculture than for other industries, the 26.3 per cent would be reduced to 24.4 per cent. It is true that though farm children go to school 8 or 9 months a year, they assist considerably with the farm activities. But the *money* value of their services is far less than usually realized.

Apparently these figures showing the farmers' sharing so poorly in the distribution of the national dividend were received with a great deal of favor at the time. The Secretary of Agriculture made a pie-diagram out of them in his 1921 report. At any rate, Mr. Leven not only continues the analysis through 1920 and 1921, but works out the comparison for separate states. It appears that in Minnesota the 37.6 per cent of the population living on farms in 1919 received only 26.9 per cent of the income. Mr. Leven's figures are all on a population basis. Some other comparisons are 60.5 and 60.0 for North Dakota, 37.3 and 41.0 for Kansas, 4.6 and 7.7 for New York, 33.6 and 56.0 for Alabama. Only California, Nevada, and Wyoming show the farm population in the lead.

Mr. Leven's percentage of income going to farmers for the whole United States in 1919 is 17.7. When this 17.7 per cent on the income side of the comparison has been properly amended, and the 29.5 per cent of the population has been reduced to a gainfully employed basis, and this in turn refined for the differences in workers under 17 years of age, it probably will appear that the farm workers were as well rewarded as the average of city workers in 1919—at least, for comparable geographic districts.

But for the years since 1919 the results will be altogether different. Except for the brief period of severe depression around 1921, profits of urban business and wages of urban labor have been upon a relatively high level, while prices of farm products have been relatively low and expenses high. Mr. Leven's percentage figure for 1920 is 13.4 per cent, and for 1921, only 9.9 per cent. These no doubt roughly measure the change in agricultural conditions over these years. But figures which measure conditions very inaccurately in separate years may be poor indexes of differences between years. Even though the bias of error is always in the same direction, it may differ in amount from year to year. Farm families have no doubt been more self-sufficient during these years of depression.

In all fairness, it must be stated that some effort is made to set forth the foregoing percentages merely as indexes of relative conditions, but the effort is promptly discontinued and the cautions forgotten.

Income From Changes in Farm Inventory

In computing his changes in farm inventory, Dr. King takes account of changes in prices and price level as well as changes in physical inventory. The result is something truly preposterous so far as agriculture is concerned. It appears that in 1919, the farmers of the United States lost $264 per farm on the average because they had not yet had enough of a land boom to lift land prices as high as the general United States price level, and that in 1920 they made $385 per farm because they had just had a boom and had not deflated as much yet as had the general United States price level (page 32, Income in the various states). The Wisconsin farmers lost an average of $703 in 1919 because they had not had much of a land boom, and the Iowa farmers made an average of $1,140 because they had had a boom. The preposterousness of this lies especially in the fact that land prices should not rise with the price level until it is clear that the new price level has come to stay. Dr. King's method would make farmers acting rationally in such a situation appear to be losing money. This of course is just another instance to prove the uselessness of the concept of "the purchasing power of land" except under almost static conditions.

The writer is laboring under the impression that Dr. King's appeal to accounting practice for support in his procedure will lead him into difficulties. Is it not rather the policy of good accountants to consider temporary gains in inventory value due to mere changes in market prices as "paper profits," and to keep them out of balance sheet statements?

THE INDUSTRIAL CONFERENCE BOARD'S REPORT

It is highly necessary to remark, in passing to a consideration of the data presented by the National Industrial Conference Board, that here again the writer is not attempting a "review." That job has already been done several times, once by Professor C. L. Holmes in the January issue of the Journal, briefly by Professor George F. Warren in the last issue of the *American Economic Review,* and at considerable length by Dr. Joseph S. Davis of the Food Research Institute in the last *Journal of the American Statistical Association.* All who

have not should surely read the last review. Dr. Davis has no doubt come nearer to leaving the impression that farm people are as well off as city folks than he really intended—this is one of the consequences of brevity of statement.

There is also some danger that one will underrate the value of the Conference Board's study after reading Dr. Davis's report. Surely, as Dr. Davis states, it is not a very safe guide to an agricultural relief program. But it does contain considerable analysis that is sound and clarifying. What is more important, it was prepared under auspices that would make its findings readily acceptable to the business interests; it is couched in terms that will attract the attention of business men. And it makes out a case for agriculture which is even more doleful than that made by the National Bureau of Economic Research. No doubt it has made more business men think seriously about the problems of agriculture than anything published on the subject.

In the first place, this report contains no new data on the relative incomes and purchasing power of farm and other workers. It accepts absolutely the figures of the National Bureau of Economic Research in this regard. There is also an income-share analysis for the period 1909 to 1921 which follows Dr. King's closely.

The new developments are principally the carrying of the National Bureau's income-share analysis back to 1850 by census years, and supporting it with a cost-price analysis. Any analysis which will carry us back behind 1909 is surely welcome to one bent on such a quest as ours. Let us examine the income-share analysis first. Following are the essential data:

Year	Percentage of working population in agriculture	Their share of national income	Ratio of share of dividend to percentage of working population [1]
	Per Cent	Per Cent	Per Cent
1850	63.2	34.6	54.8
1860	53.0	29.9	56.6
1870	47.6	26.5	56.1
1880	44.4	20.0	45.0
1890	39.2	18.7	47.7
1900	35.7	20.5	57.4
1910	34.8	18.0	51.6
1920	29.0	13.8	47.9

[1] This type of ratio is the one used in Mr. Leven's report (page 281). The ratio used in the Conference Board's report (table 13A) gives the same relative results.

The exact conclusion from these data is "that up to 1900 the share of the national income per person engaged in agriculture increased relative to the share of persons engaged in all other gainful occupations, but from 1900 to 1920, there was a rapid decline in the relative share of agricultural workers, which brought it below the level of 1870." (Page 49.) Both Dr. Holmes and Dr. Davis were skeptical as to this conclusion, but could not take the time to explain why. It is based largely upon the low figure for the year 1920. But this was the first year of the agricultural depression. The share of the national dividend going to agriculture in 1919 was 18.3 (Table 12B). *Using this figure in place of 13.8 would have made the ratio 63.3 in place of 47.9. Furthermore, this is the figure which should be used. The Census of 1920 measures the 1919 crop year as did the Census of 1910 the 1909 crop year.* The average share of national income going to agriculture for the three years of 1917, 1918 and 1919, as appears in the following table, was 19.1, and the accompanying ratio 61.4. This is well above both 1910 and 1900. Admittedly, these were abnormally prosperous years for agriculture. But the four years from 1913 to 1916 are also well above the preceding four years in the table:

Year	Share of working population in agriculture	Share of national income	Ratio of foregoing
	Per Cent	Per Cent	Per Cent
1900 ----------	35.7	20.5	57.4
1910 ----------	34.8	18.0	51.6
1909–12 -------	32.6 [2]	16.8	51.5
1913–16 -------	30.8 [2]	17.0	55.2
1917–19 -------	28.8 [2]	19.1	61.4
1920 ----------	29.0	13.8	47.9
1921 ----------	28.4	10.6	37.3

[2] Estimated from Table 12B on the basis of Census ratios of adult workers to total workers of all ages and sexes in agriculture.

But this still leaves the ratio for 1900 higher than for all the years following except the war years: Is it properly so? The writer believes not, for three reasons, as follows: First, the figure 29.0 for working population in 1920 should probably be appreciably under 28. Considering the high ratio of children to adults on farms, the figure 29.0 is altogether too close to the 29.5 figure for percentage of total population living on farms.

Second, there is excellent reason for believing that the figure 34.8 is too high for 1910. Owing to a change in Census instructions, at least a million more boys and girls and women were counted as gainfully employed in 1910 than if the instructions had been as in 1900 and 1920. This is all carefully explained in the 1910 Census volume on "Occupation Statistics" (page 26 ff). Dr. King recognizes it in his analysis. If the figures for 1910 and 1920 are high, then all in between are equally too high; and all the ratios for 1910 on should be raised from 3 to 5 points.

Third, the 1900 figures represent only one year and may be abnormally high. But more important is the fact, obvious to all who have done detailed work with Census data, noted by Dr. Davis in his review, that in the 1900 Census figures, farm land, crops and production run very high. The acreage of land in farms has actually been conspicuously less in 1910 and 1920 than in 1900 in most of the well developed agricultural regions of the Mississippi Valley and westward. This may be the result either of omissions in 1910 and 1920, or of the practice of completing and supplementing the Census schedules so freely practiced in 1900. The writer does not need to decide which. The point for us here is that it makes the data of 1900 too high as compared with those since, and as compared with those of 1890 and 1880.

In view of these circumstances, if any conclusion at all can be safely drawn from this income-share data, it is not that of the Board's report, but the contrary and more reasonable one that the real per-capita incomes of farm people fell behind badly from 1870 to about 1895, improved from then until 1919, especially during the last three of these years, and then fell with a crash in 1920 and 1921; and if farm people are badly off now, it is principally because of developments during the war, and the price debacle since, but to some extent because agriculture *had not entirely recovered by 1916 from the severe retrogression of the 1870-1895 period.* But it is doubtful even if such a conclusion is safe. In the first place, the data have all the deficiencies inherent in Dr. King's figures, and for the years before 1910, many more besides because of the condition of the data. Secondly, some of them are figures for single years 10 years apart, and

ratios of this kind jump about a good deal from year to year according to the weather and crops. It is still entirely possible in spite of these figures, that agriculture's share in the general income relative to population was somewhat less in 1915 than in 1870. Agriculture made great progress during this period; but possibly the cities made more progress.

The Trend of Agricultural Costs

The conclusion from the cost-price analysis is that beginning in 1900 the costs of production of farm products rose faster than their prices. If land rent is excluded, of course there is no reason why this should not be so. City industries, flourishing under the alleged advantages of large-scale production and protective tariffs, might very easily at any time have established a higher level of wages and capital expenses than agriculture could meet on its existing basis. There seems to be considerable evidence that this has happened since 1920.

One common escape from such a situation follows the lines of reduced production through the raising of the intensive and extensive margin, and the establishment of a new equilibrium with somewhat higher costs and somewhat higher prices. When this happens, farm people are no worse off than before, except that there are fewer of them; but they suffer while the readjustment is going on. Land values decline—this is one of the worst of the readjustments. Part of the escape in this country, however, usually comes from improvements in the technique of production, which have the effect of keeping costs from rising and land values from falling.

What really happened with respect to these things from 1900 to 1917? One surely would like to know. Unfortunately the Conference Board's analysis really does not answer the question. Let us see why:

In the first place, the average costs and prices compared are for five-year periods at ten-year intervals; and the last five-year period is the years 1919-23. Thus the last of the inflation years is averaged with four of the deflation years. Why a group of investigators suspecting that farming conditions were getting worse from 1900 until we entered the

War, did not isolate these years, and also the three war and inflation years of 1917-19, and then the deflation years, is not to be explained on any rational grounds. It is very certain that wages and other farm costs had not risen as rapidly as prices of farm products up to 1919, taking the year 1913 as a base. The discrepancy between costs and prices appearing after 1920 is so largely a post-war phenomenon that it cannot be used to prove a trend from 1900 to 1920.

Secondly, every bit of excess of costs over prices later as compared with the 1899-1903 average, is due to the increase in "capital charges" (labor and material costs rose 123 points to 1919-23; "capital charges," 298 points, and wholesale prices, 122 points). These capital charges are computed by applying an interest and tax charge to the total value of the farm investment, *including land.* Dr. Davis also points out in his review that this including of a land charge especially as here computed, defeats the whole purpose of the analysis. Rents of farm land very closely reflect changes in costs and prices of farm products. Land values normally reflect them after a lag of from three to ten years. The inflated prices of 1917 to 1919 were reflected in land prices strongly by 1919, and these high land prices continued through 1920 and 1921. The average land charge for the 1919-23 period was therefore very high, which mostly accounts for the index of 403 for "capital charges."

There is almost the same objection to using a percentage of value of productive livestock as a cost figure. Only increase in the physical quantity of productive livestock is properly reckoned as an additional investment item.

If value of buildings, machinery and equipment, and mules and horses, as given in the Census be considered by themselves, the increase of 1920 over 1900 is from $5,403,000,000 to $17,649,000,000, or 227 per cent. The indexes for the three Census years, 1900, 1910, 1920, would be 53, 100, and 172 on a 1910 base. Land improvements should probably be included with buildings and would probably show the same sort of increase. This increase in capital goods must be divided by the index of physical volume of agricultural output to reduce it to a unit of product basis. Using the Board's own index series for this, 81, 100 and 111

(Table 9), which is said to be based on Dr. Edmund B. Day's, would convert the series to 65, 100 and 155 for the three Census years. The index series for wholesale prices, expressed on a 1910 base, is 60, 100 and 238 for the same three years. Here surely is no evidence of cost increasing more rapidly than prices.

Thirdly, it is difficult to see how material costs "per unit of product, properly computed, could have risen more than wholesale prices of farm products during this period," when the index for farm products rose 167 points while the all-commodities index was rising only 131 points. To be sure, more of some of these were used, but of few of them, more per unit of product. Many of them are proportional to product in the first place. Living expenses, here included in material costs, can only be interpreted for the purposes of such an analysis as varying with the quantity of labor per unit of product—and it is pointed out below that labor per unit of product decreased.

Fourthly: There is serious objection to including cost of farm family living in material costs. If the plane of living on the farm were to rise over a period along with incomes, costs of production would appear to rise also.

Fifthly: Labor costs are computed by combining output per worker with wages, it being assumed that hired labor rates are properly applied to family and proprietor labor. The data on output per worker in the report show a sharp decline in 1910. As already explained, this is due to the counting of about a million additional boy, girl and women workers in the 1910 Census. If adult males in agriculture are used as a basis for an index of change, this decline is turned into an increase from 91 to 100, with 1910 as the base year. (The Board's report used 1880 as base year.) The 1920 index is 107 on this basis. These have to be converted to labor inputs per unit of output before they can be combined with wage indexes. When this is done, the indexes of labor cost for 1900, 1910 and 1920 will be 79, 100 and 192 respectively, as compared with 60, 100 and 238 for wholesale prices of farm products. There is no evidence here of increasing labor costs relative to prices. Yet the Conference Board finds that there is! (Page 42.)

If only hired labor costs are considered, which is the correct procedure, the indexes per unit of product would be 68, 100 and 189 for the years 1900, 1910, 1920 respectively. These are based on the Census figures for expenditures for hired labor and the same indexes of physical production as used above. The following table gives the supporting data:

	(I) Cost of hired labor on farms (Million)	(II) Index of same	(III) Index of agricultural production	(IV) Index of cost per unit of product (II ÷ III)	(V) Index of wholesale prices of farm products
1899 --------	$357	55	81	68	60
1909 --------	652	100	100	100	100
1919 --------	1350	210	111	189	238

III—From Table 9 of the Board's Report.
V—Bureau of Labor Statistics for the same year as the Census figures.

Hence the final conclusion is that the authors of this report really fail to make a case for declining welfare on farms on the basis of the cost and price comparison as well as on the basis of per capita incomes. This does not mean that such a case could not be made out. Dr. Day's index of physical production does not include livestock production. Including this might change results. Using farm prices in place of wholesale prices would have a pronounced effect, but only since 1919.

Confounding Size of Agriculture with Welfare of Farm People

The principal cause of the confusions into which the authors of the Conference Board's report fall is their inability to think in terms of the prosperity of the farm people as distinguished from the size of the industry of agriculture. It is true that our supply of good new farming land gave out about 1900, and expansion on the extensive margin has been less rapid since. (A considerable part of the small increase between 1900 and 1910 is due to Census errors as already explained.) But this does not mean that those on the land already are not prospering. It probably means quite the contrary. The Board's report abounds with calculations of acres in land, crop acres and production "per capita" of the whole population." Such figures serve to show whether

cities are growing faster than the country: but prove in themselves nothing as to the well-being of country folks. The only reason that decreasing production per capita of the whole population may mean less welfare in farms is that it implies increasing comparative advantage for city industries, and in such a case it is not likely that the population will shift cityward rapidly enough to keep rewards as high in the country as in the city. What is probably needed in such circumstances is a still further decline in the production per capita of the whole population—either that or some new strides in the technique of farm production. On this point also, Dr. Davis has some excellent remarks in his review.

The report of the Joint Commission of Agricultural Inquiry exhibits this same type of confusion. Witness the following statement: "Measured by the quantity of output (meaning aggregate) the well-being of agriculture has lagged behind other industries." We are not interested in the "well-being of agriculture": we are interested in the well-being of farm people.

Returns to Capital

For some purposes, a separate return for agricultural capital is highly desired. If agriculture earned only 3.3 per cent on its capital investment in 1923, as compared with 11.0 per cent for corporate capital investment, as stated in the Bureau of Agricultural Economics' income analysis (Crops and Markets for July, 1926, p. 228), this is highly significant. The Industrial Conference Board has constructed such a series. It starts with 4.60 per cent in 1909, rises to 11.46 per cent in 1919, and sinks to 2.88 in 1920. It is low in 1920 because land values are still high and incomes have subsided. This suggests one of the principal defects of the series. Because on the one hand land yields an income in perpetuity, and on the other, a considerable part of land cannot be reproduced, the relation between its income and value, especially in a period of shifting price levels, is peculiar. A second objection is that it probably makes too large a deduction for the value of unpaid family labor. Sel-

dom, indeed, is family labor on the farm worth what it would cost to hire outside help for the same period. Also that part of the percentage return to agriculture which consists of living obtained from the farm is not on a comparable basis with corporate returns. The problem of a proper basis of comparison of farm and corporate returns to capital is thus far from solved in the Conference Board's analysis.

CONCLUSIONS

Thus it turns out that we are left without satisfactory data of the kind needed for the period before 1920. As a basis of absolute comparison of city and rural well-being, the data in the form published are positively misleading. Amended as much as possible on the basis of supplementary facts, they strongly suggest that in 1918 and 1919 the per-capita incomes of farm workers were at least equal in purchasing power to those of the average of all other workers in the same sections of the country, but that from 1909 to 1916 they were far from being so.

Considered merely as indexes of change for the period from 1909 to 1920, the following data mostly from the Conference Board's report will serve roughly:

	I Gross Income including food fuel, and rent from farm (Millions)	II Taxes hired labor, and other out-of-pocket business expenses (Millions)	III Net return (I-II) (Millions)	IV Number of farms (Thousands)	V Net return per farm (III ÷ IV)	VI Total crops not fed and annual products (Millions)
1909	$5,647	$1,261	$4,386	6,330	$694	$6,472
1910	6,757	1,340	5,417	6,362	850	7,192
1911	6,418	1,420	4,998	6,376	784	6,992
1912	6,338	1,451	4,887	6,388	765	7,467
1913	6,985	1,550	5,435	6,400	850	7,886
1914	7,157	1,584	5,573	6,410	870	8,165
1915	7,473	1,632	5,841	6,418	910	8,638
1916	8,461	1,849	6,612	6,425	1,030	10,359
1917	11,190	2,344	8,846	6,432	1,323	13,949
1918	14,463	2,832	11,631	6,438	1,809	16,504
1919	16,947	3,397	13,550	6,443	2,160	17,677
1920	12,186	3,792	8,394	6,448	1,302	14,811

Columns I to V from National Industrial Conference Board's report, Table 15, but based mostly upon income studies of National Bureau of Economic Research. Column VI is from Table II, p. 227, **Crops and Markets**, July, 1626.

The net returns per farm in Column V are the amounts available per farm for cash and share rent, for payments on the interest and principal of real estate mortgages, for improvements to land and buildings, for purchasing new

equipment and expanding the livestock enterprises, and for living expenses, insurance and other savings. If these net returns are to be significant as indexes, however, they must be supplemented with information as to how they were spent, how much went to rent and interest, how much for real estate improvements, how much to family living, etc. In effect, a separate index of the prices to farmers for each of these classes of purchases should be constructed. The index for prices of consumer's goods really needs to be in two series, one for goods furnished by the farm, and the other for goods bought in town. The series for goods furnished by the farm must use the same prices as was used in valuing them in compiling the gross income figures in Column I.

Attention is called to the fact that the figures in Column VI, which are the most recent and most nearly accurate estimates made by the Bureau of Agricultural Economics, are considerably higher than the gross income figures in Column I, even though they omit house rent and probably several other items. Anyone wishing a gross income series will do well to start with the series prepared by the Bureau of Agricultural Economics and make such additions and subtractions as needed.

In the matter of returns to capital, there can be little doubt that a properly made comparison would show agricultural capital receiving a relatively low return. It is in this comparison that agriculture shows at its greatest disadvantage.

For the period before 1909, the safest venture is that agricultural well-being fell behind from 1870 to 1895, and then began to improve. But we cannot be certain. The comparison is between two rates of progress, always a difficult one to make.

Granted that the foregoing is a true statement of conditions and trends, what do we know of underlying causes? Was the improvement which began in 1895 merely a reaction from the recession of the preceding decades? Or was it because the rapidly growing populations of Europe and the United States had at last begun to catch up with the food supply? Or was it a phenomenon of a special cycle

which applies to agriculture alone, as certain Europeans have suggested? How much of it was due to relative increase in prices of farm products and how much to increased agricultural efficiency in the United States? To what extent was the movement paralleled in other agricultural areas?

Until we can answer questions of this kind, we are in a poor position indeed to project the future and say whether Dr. Nourse or Dr. Warren is right. Secretary Jardine recently told the members of the Boston Chamber of Commerce that the population had again almost caught up with the food supply, and that therefore the agricultural depression is almost over. Is he right? What we need is a more fundamental study of changes in agriculture in the United States and the world than anything that has yet been undertaken.

For the years beginning with 1919, the Bureau of Agricultural Economics of the United States Department of Agriculture has collected more accurate data than those available for earlier years. These are published in the July numbers of the Monthly Supplement to *Crops and Markets*. The following summary figures from the last report are those intended to show most accurately the true condition of agriculture:

Crop years	Income available for capital labor and management (Per farm)	Rate earned on all capital invested in agriculture	Rate earned on operator's net capital investment	Interest at 4.5% on operator's net capital investment (Per farm)	Reward for labor and management (Per farm)
1919-20	$1,246	6.3	5.7	$329	$917
1920-21	684	6.5	—4.2	287	397
1921-22	514	1.2	—2.3	244	270
1922-23	682	3.2	1.2	242	440
1923-24	766	3.5	1.6	233	533
1924-25	854	4.4	3.2	230	624
1925-26	879	4.6	3.5	231	648

These data indicate that agriculture is fairly on the way to recovery. The figure of $648 for 1925-26 is probably to be compared with something like $400 to $450 for the years 1913-15. No comparison of this kind can be made from the data published by the Bureau of Agricultural Economics; but the Industrial Conference Board, working along similar lines, has a figure of $804 for 1924-25, which compares with $512 as its average for the years 1913-15. If agricultural products are priced at 80 per cent of non-agricultural prod-

ucts as compared with the year 1913, then the $648 will equal about $520 of 1913 dollars in purchasing power. The Department of Agriculture's own estimate for 1925-26 is that the money income per farm family was 72 per cent of that for 1919-20, and that the purchasing power of this money income was 81 per cent of that for 1919-20. Dr. King's figures for purchasing power per farm in 1919 was $833, as compared with about $450 for the 1913-15 period, measured in dollars of 1913. If these can be taken as fairly safe indexes, then surely farmers have appreciably more buying power now than before the war. It should be made clearer than it is that the figures called "rewards for labor and management" in these reports are merely indexes. They must not be taken as comparable with urban incomes.

Three additional circumstances, however, need to be taken into account before one can properly adjudge the present situation. The first is that a considerably larger mortgage interest bill must be met out of the $648 in 1925-26 than from the $520 before the War. Second, the farmer's plane of living was raised in several important respects between 1910 and 1920, and he is trying hard to keep his family on the new plane. Many more families today than in 1913 have automobiles, telephones, radios, furnaces and water systems. Rather than dispense with these, farm families today are inclined to postpone payments of mortgage debt and higher education for their children. Third, a great many farm families went into debt as a result of operating losses in the period from 1920 to 1923, and are now struggling under the burden. Current income statements may look favorable: but the balance sheets do not. Of course that which is causing much of the remaining agricultural discontent is the melting away of farmers' and land speculators' equities in the rapid decline in land values following 1920.

But it is not enough to compare agricultural conditions now with agricultural conditions in 1913. How have other classes fared since 1913? The Federal Reserve Board's data show that factory wage earners' buying power in 1925-26 was 16 per cent *higher* than in 1919-20, and that even their money incomes were 3 per cent higher. The dif-

ference between 16 per cent more for city labor and 19 per cent less for farmers, is truly stupendous. The year 1926 was the best year that the corporations in the United States have ever had. Each year of late has shown a large increase in the number of million dollar incomes. The outward signs of this rapidly increasing well-being of the already well-to-do and of the somewhat improved condition of the city working classes, are evident to farm people the moment they enter a city's gates. It is small wonder that they are discontented.

If we are going to know the changes in the relative well-being of the farm people as well as we should in order to take proper legislative and educational measures, we must have all the data and analysis that the Department of Agriculture is now providing and more besides. It has already been pointed out that we need a more fundamental study of past trends and their causes. We also need more conclusive information as to the real well-being of farm people and comparable city groups. The studies of farm people should be regional and should include a large number of regions in different degrees of economic progress. The city groups should range from common laborers to the well-paid professions and business; and they,too, should represent the major sections of the country. The excellent work begun by the workers in the Bureau of Agricultural Economics should be continued. The work which Mr. Mendum is doing in collecting data on farm receipts and expenditures needs to be greatly expanded. A larger and more representative *sample* is needed. State agencies should cooperate with him in this work. Returns should be available by regions. Mr. Kirkpatrick's studies of rural living in selected areas should be revamped to fit the needs of such analysis as the foregoing and then greatly increased in numbers.

If it is safe for an outsider to make a few further suggestions, one is that it would help greatly to publish the expense data in as much detail as receipts are now published. It is also doubtful if it is best to charge unpaid family labor as an expense. In general more error than truth is introduced into an analysis by so doing. As before suggested, the whole matter of the calculation of a rate of returns on

farm capital needs to be carefully reexamined. The same must be said for the deductions for cash and share rent.

Until more of such information is available, it will not be possible to come to any final conclusions on some of the major issues raised in Dr. Nourse's paper. There is every reason in the world, however, why discussion of these issues should in the meantime be continued. Professor Warren and Professor Hibbard look upon increasing efficiency as one of the ways out of the present dilemma of agriculture. This is anathema to Dr. Nourse. Professor Warren and Professor Hibbard are probably thinking that increasing efficiency raises the real incomes of those farmers who are safely above the extensive margin and who participate in the increasing efficiency. They probably believe, also, that those who are forced below the margin will get out of agriculture fairly quickly. Dr. Nourse does not expect them to do this. Then there is the whole question of world population and food supply to be analyzed. No agricultural economist has yet challenged Professor East's conclusions in "Mankind at the Crossroads." It badly needs doing. The writer poignantly wishes that Dr. Nourse would not think of the population and food supply problem so much in terms of the United States alone, as if a Chinese wall were built around it. There are at least three subjects in the foregoing which are ripe for the pen.

THE PROBLEM OF INHERITANCE IN AMERICAN LAND TENURE [1]

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A few years ago a visiting Japanese scholar asked whether we Americans had a "theory of land tenure." In trying to answer this question it seems to me that we have in the familiar "agricultural ladder" an explanation, principle or "theory," if you will, of American land tenure. By tenure we have in mind not merely "tenancy" but the whole range of the conditions and status through which many of our farmers pass. Like Shakespeare's hero of the seven ages, they play many parts in their progress from wage-earner to retired-farmer-landlord, in fact, as many as six in some cases. This situation is more or less peculiar to America. Great Britain before the World War serves as an example of almost opposite conditions. Instead of each man playing many parts, each one played only one part and he stayed in his assigned station. Landlord, farmer, laborer were almost completely separated in their functions. But there are many variations in foreign countries and it is not wise to generalize too much.

In theory, there is an ideal system of tenure based on the agricultural ladder. In this system there is a *normal* flow of men from the lower stages to the higher. At any given time a certain proportion of farmers will be found in the hired man stage, a given percentage will be tenants, another part encumbered owners, and so on. This is what is implied by the phrase "normal percentage of tenancy."

However, these stages in American land tenure are not fixed. They can be shifted, omitted or modified by social and economic institutions according to our conception of a land tenure policy. Our land and reclamation policies no doubt had in mind the largest possible number of home owners, but tenancy has come to be a part of our system of land tenure. Is this inevitable? Shall we go farther with it and separate the function of land ownership completely from that of operation?

[1] This paper was read at the seventeenth annual meeting of the American Farm Economic Association held at St. Louis, December 29, 1926.

Shall our aim be to establish a system of land tenure for its own sake or shall our ideal be the social and economic advancement of the farmer irrespective of his relationship to land? How far shall we modify this ideal by social control for the general welfare?

However, without entering into this part of the discussion too far, it is generally true that the ideal of owner occupancy and the ideal of the greatest well-being of the farmer and the nation are in harmony. Therefore, we can grant but a very small place to tenancy as a permanent status for the mass of American farmers. There is something admirable in the American ideal of becoming a landowner, to be independent and even to prefer the hardships of the frontier rather than "work under a boss" even with the "flesh pots of Egypt" among the amenities of his job.

The Institute for Research in Land Economics and Public Utilities is making a study of land tenure with this theory of tenure as the central theme. The purpose is to test this hypothesis by examining in detail the manner in which men have acquired ownership in several selected areas. One of these is Walnut Grove Township in Knox County, Illinois, where about 50 per cent of the farms are rented; the second is the town of Newton, Manitowoc County, Wisconsin, where there is almost 100 per cent owner operation. A third study was made by Mr. Kuhlman of the University of Illinois under

TABLE 1

METHOD OF ACQUISITION OF FARM PROPERTY: PROPORTION OF PERSONS IN CERTAIN GROUPS ACQUIRING THEIR FARM PROPERTY BY PURCHASE, INHERITANCE, MARRIAGE AND HOMESTEADING.

Area	Class	Purchase from relatives	Purchase from others	Inheritance	Marriage	Homestead
		Per cent		Per cent	Per cent	Per cent
Nebraska [1]	Landlords	78.8		[2] 20.0	--	1.2
Kansas [3]	Owners	73.9		[3] 11.0	1.8	13.3
Massachusetts [4]	Owners	15.9	66.9	[3] 28.7	1.6	----
Illinois, Iowa [5]	FHTO	12	77	1	9	1
Kansas, Nebraska [5]	FHO	6	55	7	28	4
Minnesota [5]	FTO	30	41	23	5	1
	FO	30	16	47	4	3

[1] J. O. Rankin, *Landlords on Nebraska Farms*, Nebraska Agri. Exp. Station Bulletin No. 202, p. 10.

[2] Includes "gift."

[3] Director's Report of Kansas Agri. Exp. Station, 1918-1919.

[4] Lorian Jefferson, A Study of Farm Ownership in Massachusetts, *Journal of Farm Economics*, October, 1923. p. 215.

[5] W. J. Spillman, The Agricultural Ladder, *American Economic Review, Supplement*, March, 1919.

TABLE 2

PROPORTION OF OWNERS IN CERTAIN GROUPS ACQUIRING FARM PROPERTY IN PART OR WHOLLY BY THE METHODS INDICATED AND THE PERCENTAGE OF THE ACREAGE ACQUIRED BY EACH METHOD.

		Purchase			Inheritance			Marriage		Homestead	
Area	Class	Part Per cent	Whole Per cent	Acreage Purchased Per cent	Part Per cent	Whole Per cent	Acreage Inherited Per cent	Part Per cent	Acreage by marriage Per cent	Part Per cent	Acreage Homesteaders Per cent
Knox Co., Ill.[1]	Owners	13.4	48.8	--	13.4[2]	32.9	--	4.9	--	--	--
Northeastern	Landlords	78	64	69	31	18	27	5	4	--	--
North Central	"	84	64	79	30	12	17	6	3	1	1
Great Plains	"	66	61	84	14	5	7	5	2	23	7
Southeastern	"	82	59	72	31	12	21	11	6	1	1
Southwestern	"	89	74	82	18	6	11	9	5	5	2
California	"	77	67	67	31	16	26	10	6	5	1
All above[3]	"	84	64	79	27	11	16	7	3	5	2
Men, North Central[4]	"	91	69	86	24	7	11	4	1	5	2
Women, North Central[4]	"	52	37	42	47	34	44	15	11	4	3

[1] William Ten Haken, Current Study by Institute for Research in Land Economics and Public Utilities.

[2] Includes "gift."

[3] H. A. Turner, The Ownership of Tenant Farms in the United States; *U. S. D. A. Bulletin*, 1432 (1926), page 40.

[4] H. A. Turner, The Ownership of Tenant Farms in the North Central States; *U. S. D. A. Bulletin*, 1433 (1926), page 34.

the direction of Professors Stewart and Case, in Hensley Township near Champaign, Illinois, where about 70 out of every 100 farms are operated by tenants. The schedules used in the three areas are almost identical so the results will be comparable when the data are complete.

Tenancy, because of its sociological importance, has been over-emphasized in the discussions of land tenure. While 38 per cent of our farmers are tenants, only 44 out of every 100 have used this stage to reach ownership. Neither has the wage-earner's step been as important as might be expected. A little over one-third of our farm owners have ever been agricultural laborers, whereas 41 per cent of the present owners have never been either tenants or hired men. They are the familiar "F O" group in discussions of the agricultural ladder. How did these men acquire landed property? Only three or four alternatives are open. They could have obtained it by (1) homesteading; (2) by inheritance, gift or by marriage; (3) by earning the money in other occupations; (4) by obtaining sufficient credit to enable them to pay for the land out of earnings as owner-operators. It shall be our purpose to consider these four means more in detail. The accompanying tables present some of the data that can throw light on the "F O" group. Most of the references used in this paper are to the sources upon which these tables are based.

Homesteading is closed as a means of obtaining land in the older parts of the country and even in the newer States not more than 7 per cent of the area owned by landlords was acquired in this way, according to H. A. Turner's figures. This is of historical interest but is of little use in trying to shape land policies for the future.

The second method is that of inheritance. Sometimes "gift" is also noted. However, we can throw gift and inheritance together for our purpose.

Inheritance plays such a small part in the transferring of property from one generation that it ought to occasion surprise. This was noted in Census Monograph IV, where Sedgwick County, Kansas, reported 5.9 per cent of the owners as having inherited their farms and 15.5 per cent of the farmers of certain Illinois townships as having acquired their farms in this way. The preliminary statement on the farm real estate

situation 1920-26 issued by the Division of Land Economics of the United States Department of Agriculture last December reports the various methods by which land changed ownership during the year ending March 15, 1926. About 12 per cent of the changes during that time were through inheritance and gift. Virginia ranked the highest with about 20 per cent and Montana and Wyoming the lowest with about 3 per cent. H. A. Turner's figures on landlords show that for the United States as a whole 27 per cent of the landlords inherited part of their land, 11 per cent all of it, but that the acreage acquired represented only 16 per cent of the total acreage owned. Since this deals with landlords only it also includes land inherited but not operated by the owner. Inheritance is more common in the older parts of the United States; but even in Massachusetts, according to Lorian Jefferson's figures, only 28.5 per cent of the farms were acquired by gift and inheritance. They also indicate that inheritance is of less importance than it once was; in the decade 1880-1889 one-half of the farms were inherited, in the years 1910-1920 only 18 per cent.

To what extent different tenure groups inherit their farms is shown by Dr. W. J. Spillman's figures. Few of those who had to earn their money as tenants and hired men were so fortunate as to inherit a farm. Of the "F O" group 47 per cent did so and of those who were also tenants (F T O), 23 per cent. This is quite in accordance with the fact that many landlords and tenants are related, mostly as sons or as sons-in-law. In Knox County, Illinois, over 25 per cent of the owners inherited their farms and an additional 13.8 per cent inherited part of their land. Seven per cent reported the acquisition of their farms by gift. The 1925 census gives us a nation-wide picture of "related tenancy."

Theoretically, it would be possible for inheritance to be the sole means of transferring landed property to the next generation. Let us assume a stabilized agriculture with all the farms of proper size and no new farms being created out of cut-over land or other potential agricultural land. As one after another of these farmers is ready to retire, a son or son-in-law can take over the land without a break in tenure or unsettling of local associations or institutions.

It is interesting to note in passing that the Liberal Land Report of Great Britain makes inheritance the approved way of transferring cultivating tenure to the next generation.[2] The Russian land reform of the Soviet government likewise hoped to make this the sole means of transferring land occupancy to the next generation of cultivators.

In order to study the agricultural ladder in a purely home-owning community, the town of Newton in Manitowoc County in eastern Wisconsin, was selected. This town was settled between 1847 and 1855 by German, Polish and Irish settlers. Practically all the land was entered between 1847 and 1850; some of it by the actual settlers, who started immediately to clear the land. But most of it was taken up by absentee or local speculators, largely of so-called "Yankee" parentage. A period of rapid turnover, tax sales and even foreclosure followed, but by 1855 the lands had passed into the hands of bona fide settlers. It is interesting to note how pioneer communities of today are likewise passing through these initial stages and growing pains. Perhaps similar historical study of pioneer conditions in widely scattered areas over the United States would shed some light on the difficulties to be overcome in all pioneer belts.

By 1860 about 300 farms were in the possession of owner-occupants. Several of these settlers were old men and as early as the Civil War some farms were being transferred from father to children. In but very few cases was the transfer made by leasing the farm to the son. The census of 1880 records only two renters in the township and both of these were renting from their fathers. Since then the proportion of tenants has never been much higher. The land coming on the rental market is generally land which cannot be sold until an estate is settled or for other temporary reasons. Manitowoc County had only 161 tenants out of 3,887 farmers in 1925 or 4.1 per cent of tenancy. In 1910 the percentage was

[2] A Cultivating Tenant shall have power to devise to his widow, or her widower, to son, daughter, grandson, or grand-daughter, or, by leave of the proper authority, to a near relative who, before the testator's death, has been resident and working on the farm or under training for succession. A Cultivating Tenant during his or her lifetime may transfer a holding to persons within these same degrees of relationship, and under the same conditions. This provision allows for retirement from farming, and for transference of title from, say, daughter to son-in-law.
The Land and the Nation, Rural Report of the Liberal Land Committee (1923-25) (Hodder and Stoughton, London) p. 306-307.

only 3.9 per cent. This condition is typical of all the lakeshore counties north of Milwaukee.

Inheritance has played a large part in the transfer of landed property in this township. Some of the farms are now in the hands of the third generation without a break in family ownership. In one section half of the farms are in this class. Only three changes in ownership are recorded for farms of this type. The length of time on the farm for the middle generation is often as much as 40 years. The men of the first generation divided their life span between Europe and America, therefore, the years spent on the American farm are relatively few. The third generation has not yet completed its tenure. This township was also studied by the Wisconsin Historical Society and Dr. Shafer, the Superintendent of the Society, has said that it was unique in this respect—no other township so far investigated by him has shown the same stability of farm population as this one. However, even here inheritance is not the sole means of transferring property. Land comes on the market because there are no heirs or the heirs do not want to be farmers. However, if there is no son to inherit, a son-in-law may "carry on," which accounts, in part at least, for the "marrying" of farms noted in the tables above. Other farms are sold because of death of young farmers. Many women become "landlords" for this reason, although in Wisconsin they usually prefer selling to renting. Other farmers leave the country in middle life to take up city occupations. Many of the successful business and professional men now in the city of Manitowoc were once farmers in Newton.

If inheritance were the only way in which farms were transferred, there would be no opportunity for anyone, not an heir, to obtain a farm. No farm would ever come on the sales market and the rate of change in tenure could be no faster than the rate of retirement of the generation already in possession of the farms. If only 25 per cent of the farms are inherited, then 75 per cent are unreserved by the heirs and are open to purchase by those who cannot inherit land.

The fact that inheritance is more common in the older sections of the United States and still more important in Europe suggests that in the future more land will be transferred in this way and less land will come on the sales market. The ex-

perience of Massachusetts seems to be to the contrary but the great influx of foreign born farmers may account for this contradiction.

However, "inheritance" and "gift" have not been defined with any degree of accuracy in land literature. Dr. Spillman's table shows that 47 per cent of the "F O" group inherited their farms. Just how did they inherit this property? If they were *only* sons falling heir to the *whole* farm without any claims by any other children or other heirs the case is simple. Such cases do occur and a few are to be found in the town of Newton. But usually there are other children and the process becomes a complicated one. The method used in Manitowoc is of interest in this connection. The so-called "Bohemian Contract," as Professor Rankin calls it, is common.[3] When the parents are ready to retire from active management of the farm three documents are executed and are usually recorded with the Register of Deeds. A deed conveys the property to the heir but is accompanied by a "bond of maintenance" in which are specified his obligations to the parents. The parents usually reserve specified rooms in the farm house for their private use, a specified garden plot and other ground which is to be plowed and prepared for their use by the son. The bond specifies either board at the son's table, or, more commonly, the delivery of definite quantities of flour, groceries, grain, firewood or coal, eggs and sometimes milk. If milk is not specified a cow is to be kept for the use of the parents. A small sum of money is commonly mentioned, payable monthly or at other stated periods. The son usually obligates himself to give them medical aid in time of sickness and a decent burial. If there are other heirs the bond specifies the amounts to be paid to them and the time for such payment. Minor children are often clothed and educated according to the articles of such bonds. Many quaint customs are revealed by the provisions of these documents. Among the Polish the bonds often specify a certain number of geese, geese feathers and the heir often binds himself to give his sisters a proper wedding feast and furnish them with bedding and a bedstead upon their marriage. The third document is a mortgage which backs up the bond.

[3] Neb. 202 op. cit. p. 19.

These bonds of maintenance were much more popular than they are now. Few of the parents when ready "to shake all cares and business for their age, conferring them on younger strengths," are willing to trust natural love and affection to the extent of not executing a bond of maintenance. There is a shrewd German proverb that says, "It is easier for a father to support six children than six children one father." But the bond without good will becomes a scrap of paper. Either the tragedy of King Lear is reënacted in miniature or the parents, like Shylock, insist on every word and tittle of the bond. The bonds recorded for this township will be given further study to see how successful they have been.

The alternative to the bond of maintenance is the renting of the land to the son. A few cases of this kind have occurred in this town but the leases often have many of the features of the bond of maintenance and the parents remain resident on the farm. In Hensley Township, Champaign County, about one-third of the tenants are related to their landlords and over two-thirds of the present owners were related to the former owners. Sixty per cent were sons or sons-in-law. Evidently inheritance, at least as commonly understood, has been an important factor in transferring of property from one generation to another in a community almost the opposite of Manitowoc County. It will be remembered that here the percentage of tenancy is almost 70 per cent. In Knox County over half of the tenants are related to their landlords.

A third method of transfer common in Newton is the complete sale of the farm to the son and retirement of parents to Manitowoc or some other city. Some of these sales seem to be at the market price just as if the farm had been sold to a stranger, and the mortgage often carries the commercial rate of interest. In other cases the terms are modified by the relationship of buyer and seller.

It would be interesting to know what relationship there is between the method of retirement and the size and efficiency of the farm involved. On first thought it would appear that only the larger and most efficient farms permit their owners to retire completely and to live from the interest or the rent. On smaller farms the parents must be satisfied with a dual arrangement, live with the young folks and accept the bond of

maintenance. However, the bond seems to be a system brought from Europe, and is not confined to any one of the three nationalities living in this area. Furthermore, some of the largest farms used the bond of maintenance. Further analysis of the data is necessary.

Another phase of inheritance needs to be mentioned. There are a number of cases in this town where father and sons work together in order that each son may have a farm when he comes of age. One such family is now buying up much of the land along a certain highway. Five or six capable men are working the farms in common instead of individually. Such cases are fairly frequent in communities of foreign extraction. How much of inheritance is there under such a plan of operation?

Inheritance also plays a part in the climb on the agricultural ladder for those who do not inherit land directly. How important this is we do not know except in isolated cases. In Massachusetts 9.4 per cent of the owners had obtained their purchase money through inheritance.[4] Unfortunately we do not know whether the sums so obtained were enough to pay for the farm completely or whether they represented only a small fraction of the purchase price. In Cedar County, Iowa, it was noted that 78 owners had inherited an average of $7,327 and five tenants had received an average of $5,000 in this way.[5] The studies in Knox County and Newton are not yet completed on this point.

Marriage as a means of acquiring a farm may be considered a form of inheritance. H. A. Turner's figures show that this method is of more importance for women landowners than for men. This was also true of inheritance proper. In Knox County 4.9 per cent of the owners had acquired farms in this way. Dr. Spillman's figures show that those who used the hired hand stage but omitted the tenant stage (the "F H O" group) "married a farm" far more frequently than any other group, thereby suggesting the biblical story of Jacob's service to Laban for Leah and Rachel. In many cases the wife's inheritance is in the form of cash and is a welcome aid

[4] Lorian Jefferson, op. cit.

[5] George H. Von Tungeln, The Social Aspects of Rural Life and Farm Tenantry in Cedar County, Iowa. *Iowa Ag. Exp. Station Bulletin 217, p. 454.*

in acquiring home ownership. The study of the bonds of maintenance in Newton indicates that this is a frequent occurrence there. In Cedar County, Iowa, marriage and gift added an average of $4,244 to the wealth of 46 owners and $827 to the bank account of 18 tenants.[6]

Summing up, there are at least eight ways by which land can be "inherited:"

(1) A sole heir receives the property gratis; if a stranger receives it in this manner it would no doubt be called a gift.

(2) The son takes the property subject to payments to the other heirs and perhaps a bond of maintenance to his parents. But is this true inheritance? The farm, no doubt, remains in the family but in some cases the son may have paid more for the farm than if he had bought it on commercial terms.

(3) The son rents the farm on easy terms but later becomes the owner, subject or not subject to payments to the heirs.

(4) A son purchases the farm on favorable terms from his parents. Since the farm stays in the family this may be called inheritance but financially differs but little from the purchase from relatives in general.

(5) The purchase of the farm from the parents on a commercial basis. Here the only element of inheritance is the fact that the farm does not come into the possession of a stranger. However, the son may inherit some money when the estate is finally settled.

(6) The son may have the assistance of the father and other members of the family in acquiring a farm through cooperative effort.

(7) He may inherit money directly which will help him to pay for a farm not the home farm.

(8) His wife may inherit a farm, money, or property by one or more of these means.

It has been pointed out that a farm is unlike a corporation which can change ownership without additional debt being put on the business itself. Every transfer in ownership, except through inheritance to one heir, means recapitalization of the farm in whole or in part. The French system of physically dividing the land among the heirs is rare in the United

[6] George H. Von Tungeln, The Social Aspects of Rural Life and Farm Tenantry in Cedar County, Ia. *Iowa Ag. Exp. Station Bulletin 217*, p. 454.

States. In Newton only a few cases are on record. Therefore, inheritance usually means the payment of shares to brothers and sisters and recapitalization to that extent. B. M. Anderson has said, "The almost automatic increase in mortgage debt in the agricultural lands through transfer of land ownership, whether by sale or by inheritance, is one of the most disturbing features of the agricultural problem." [7]

Not only does inheritance of this type mean the recapitalization of the farm and mortgage debt but it is a means of transferring a vast amount of wealth from country to city, as Dr. H. C. Taylor has pointed out.[8] To illustrate from a case in Newton: Frank B——— had ten children, five of whom were boys. One of these boys remained on the farm. The bond of maintenance shows that sums ranging from $100 to $200 were paid to the other children, $1,580 in all. Several of the girls married farmers and to that extent inheritance helped some farmer to build up his farm. Two of the boys bought farms of their own. All the rest went into city occupations. About half of the inheritance, therefore, went out of the country into the city.

But this is also a factor whenever a farm is sold before inheritance takes place and the owner moves into town. The manufacturers and professional men who moved to Manitowoc transferred the values represented by their farms to the city, leaving the purchaser to recapitalize the farm out of his own savings. Everyone who moves into the city carries not only himself but in the majority of cases, also accumulated or inherited wealth. It has been estimated that about 30 per cent of the growth of cities in the 1900 to 1910 decade was due to rural migration compared to about 21 per cent due to natural increase.[9] In so far as inheritance and the rural exodus transfer wealth to the city in preference to distributing it to the next generation of farmers, the greater will be the task of recapitalization and the more difficult the climb on the agricultural ladder.

However, not all wealth moves from the rural districts into the city. The farmers in the "F O" group have often earned

[7] *Chase Economic Bulletin*, Oct. 23, 1924, p. 11-13.
[8] *Outlines of Agricultural Economics*, p. 272-274.
[9] S. M. Gillette, American Statistical Association, Quarterly Pub., Dec., 1916.

a large part of the purchase money in non-agricultural occupations. Earlier studies have omitted this factor but in Massachusetts it was noted that 21 per cent of the farmers had experience in other occupations while almost 30 per cent of the farms were bought by men having no farm experience at all. Most of the "back-to-the-landers" are of this type. In Knox County over 20 per cent of the farmers earned part of their money in other occupations and the same phenomenon was noted in Pennsylvania, Wisconsin and even in Kansas. "Play farms," owned by someone who has made money in business which he now spends in pretending to farm, are negligible as far as agriculture as a business is concerned even though they do look well in "Country Life" and "The Field." It is doubtful whether the flow of wealth to the country by the "back-to-the-land" movement and inheritance begins to approach the reverse flow in volume and importance.

We must dismiss the role of credit with just a word. Given cheap and abundant credit it is quite possible for a young man of ability to buy a farm without going through any intermediate steps. It is with this in mind that we are studying the town of Newton. This town lies in the area of the lowest mortgage interest rates in the United States. Mortgages have been given as low as 3½ per cent, and 4 per cent has been common. Another characteristic is the source of the money. Until a few years ago 90 per cent of the loans were made by people within the township itself or by the local Mutual Fire Insurance Company, but since the War the rate of interest has been going up and more and more of the loans are from banks and other commercial agencies. Where money can be had at 3½ and 4 per cent, it is doubtful whether it pays to rent. However, the study is not completed and it is best not to draw conclusions or make comparisons until this is done.

COTTON FUTURES MARKETS IN EUROPE[1]

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The price of American cotton tends to be a world price. It is made primarily in the futures markets of the world, which are based on American cotton, because the American crop is the most important and the futures contract is the most highly standardized and the most liquid. The futures markets are the clearing houses for all information which affects either the supply of cotton or the demand for it. This discussion will not be concerned with the problems and technique of handling and marketing spot cotton, for, while they are important and helpful, they are not essential to a fair understanding of the operation and functions of cotton futures markets. Moreover, accurate studies of prices for comparative purposes are more easily made in the futures than the spot cotton markets.

There are in all the world only eight cotton futures markets. Three of these, New York, New Orleans, and Chicago, are in America; three of the others, Liverpool, Havre, and Bremen, are in Europe. The seventh one is in Alexandria, and the eighth in Bombay. The first six of these are based on and specify the delivery of cotton of the growth of the United States. The one in Alexandria is based on long staple Egyptian cotton and the one in Bombay on Indian cotton. This discussion will deal entirely with the three European futures markets except where it is advisable to make comparisons with American markets for illustrative purposes.

Europe represents the biggest single source of demand for American cotton. Prior to the War, she took normally approximately 56 per cent of the crop.

Since the war, the percentage taken by her has not averaged so high. In only one year, 1924-25, has she taken over 50 per cent. When normal conditions are restored, she will probably take about half the American crop. In order therefore to understand the world's price of American cotton and

[1] This paper was read at the seventeenth annual meeting of the American Farm Economic Association held at St. Louis, December 30, 1926.

the forces which make it, it is necessary to understand the price making forces in Europe and the channels through which they operate the cotton futures markets.

Of the three cotton futures markets in Europe, the one in Liverpool is by far the most important. It is ranked in size with New York and New Orleans as one of the three largest and most important cotton futures markets in the world.

Liverpool was the first spot cotton market organized to deal in American cotton and rivals New York for the honor of being the first to deal in futures. Conditions tending toward the development of futures markets for cotton were at work before the Civil War. The war upset normal channels of trade and hastened the movement so that shortly after the war the trading in cotton futures was an accomplished fact. The New York market was formally organized in 1870, and although Liverpool was the first market in the world to adopt a formal set of rules, which occurred in 1863, it is generally believed that she did not have a full-fledged futures contract until shortly after one was adopted in New York.

The early start, the geographical location, the international character of much of the business, and the fact that England was the world's center of trade and finance made Liverpool the first international hedge market. She did not have a rival in this field until after the World War was well advanced.

Before the War, Liverpool made the cotton standards for Europe and virtually for the world. Most cotton was bought and sold in Europe on her contract forms and according to her rules. Disputes in making final settlements were nearly always referred to Liverpool for arbitration. In case there was need for the European markets to act together, it was assumed that it would be under the leadership of Liverpool.

Much of the international business of Liverpool was lost during and after the War due to England's unstable currency, and to a more aggressive policy on the part of American cotton futures markets. The most of what Liverpool lost was gained by New York, although New Orleans is also bidding strongly for international business. With all this loss, temporary and otherwise, Liverpool is still the

dominant factor in the European cotton market, and the saying that "as is Liverpool so is Europe" is largely true.

Membership and Organization of European Futures Markets

Liverpool has members and associate members. The number of membership is limited by shares to 600. Only British subjects may become members. They do not have to live in Liverpool, though the membership is composed largely of cotton merchants and brokers living in Liverpool or its suburbs.

There are no fixed limits to the number of associate members. There are seven different classes of them, and, taken as a whole, they have but little power in shaping the policies of the Association. The class to which Americans or other foreigners may belong has no power whatever. Such memberships permit the holders to have their orders executed in the ring at half the regular brokerage, and the holding of such a membership is supposed to carry some prestige.

The market is organized and operated essentially the same as the American markets except there is no directing legislation comparable to the United States Cotton Futures Act to set a limit to its field of activities and prescribe methods of operation. The contract calls for 48,000 pounds net. The price is made in pence and hundredths of a pence per pound. The farthest ahead a contract may specify delivery is one year and one month, though a strong effort is now being made to raise the limit to two years.

Havre was the second of the European futures markets to be organized. It opened for businesss in 1882. It has never attempted to become an international market. Its activities are confined very largely to French nationals, especially for the account of Havre merchants and the French spinners on the interior.

The Havre market is organized and operated entirely different from Liverpool and the American markets. It is organized under the general supervision of the Chamber of Commerce of Havre which in turn is an agent of the national government. Each commodity is organized into what

is called a Syndicat and the cotton market is known as "Le Syndicat de Coton." The organization has no capital stock, and it is not limited by shares.

The futures side of the cotton business in Havre is composed of two distinct parts. Only brokers have a right to buy and sell futures and they must do it for the account of others and not themselves. Before one is privileged to act in the capacity of a broker, he must pass an examination and in other ways demonstrate his fitness and reliability for the profession of a broker. Only citizens of France may become brokers.

Most of the trading in the Havre futures market is done in private or up across a ring by public outcry as in America. In order to establish official prices, the cotton brokers conduct two calls each day for the purchase and sale of cotton for future delivery. They are conducted the same way as the official calls in the American markets. The first one is held at 10 A. M. and the second at 4 P. M. Much of the time no sale is made of a given delivery. In such cases, prices are made from bids and offers. Most of the spot business is done on basis on call. The one who has the right of call fixes the price by designating the day of call and stating whether the price is to be fixed on the opening or closing call.

Only merchants, spinners, and others who buy and sell contracts through brokers own stock in the clearing house bank (Caisse de Liquidation), the other essential part of the cotton futures business. All trades as soon as they are confirmed are registered in the bank. Adequate margins are required to be put up. Thence forward, the bank becomes buyer to the seller and seller to the buyer. It guarantees the fulfilment of all contracts. Brokers may become members in order to represent their clients, especially those living outside Havre.

The Havre contract calls for 11,000 kilos in about 50 bales. Prices are made in terms of francs per 50 kilos.

The Bremen cotton futures market, "Bremen Vereins fur Terminhandle in Baumwolle," is the youngest in the world if the short while it was in operation in 1914 prior to the beginning of the war be left out of account. It was opened

in January, 1925. It is an entirely separate organization from the Bremen Spot Market, the "Bremen Baumwollborse." The clearing house, the "Bremen Liquidationskasse," is a limited company. It is so linked with the futures market that a person cannot be a member of one without becoming a member of the other. The bank's stock is divided into 1,000 shares of a par value of 1,000 marks. They are made out to the bearer. Foreign nationality is not a bar to membership.

The contract now calls for 25,000 pounds net in about 50 bales, and trading is done in American cents and points per pound. Later, the contract will be for 11,340 kilos net and prices will be made in pfennigs and tenths of a pfennig per kilo. There are daily clearings and the bank guarantees the contracts after they are recorded and the margins put up.

The volume of business in the different futures markets varies widely. The largest one in the world is New York; the largest one in Europe is Liverpool, and the smallest is Bremen. No figures are published which give the volume of contracts executed in the European markets. According to estimates of brokers in the Bremen markets, the number of bales traded in in 1925 were less than a million. In the Havre market, it was estimated to be about 5 million, and in Liverpool more than 25 million.

Prices of Cotton Futures in American and European Markets

Those interested in making accurate studies of the prices of cotton in the different markets in this country encounter difficulties enough but the extension of the scope of such comparisons to include European markets multiplies the difficulties several times.

The following figures comparing prices in Liverpool and Bremen with New York are taken at random and illustrate the necessity of making rather minute analysis before any comparisons have real value. The figures are translated into American points per pound with the influence of any change in the rate of exchange eliminated. In March, 1925, Liverpool was 221 points over New York for current delivery. In July, it was 265 points, and in October it was only 48. In November, 1926, it was 101 above. The differ-

ences between the Bremen and the New York markets are more erratic and show even wider fluctuations. On April 2, 1925, the price of futures for July delivery in Bremen and New York was the same. On June 15, the Bremen price of futures for July delivery was 103 points above the price in New York for July delivery. On October 16, 1925, the price of futures in Bremen for January, 1926, delivery was 231 points over New York for the same delivery. On December 25, the price of futures for January delivery in Bremen was only 48 points above January in New York. On February 21, 1926, contracts in Bremen for March delivery were 33 points below contracts for March delivery in New York.

The fluctuations in the parity between the European markets and New York are due mainly to differences in the wording of their contracts, their rules governing final settlement of contracts, the relative supplies in the respective markets, and the rates of exchange. Only the first two points will be discussed.

Factors Involved in Accurate Price Comparisons

An understanding of the value of a contract for the future delivery of cotton involves an analysis of two groups of factors. The first of these groups contains the items the influence of which are fairly definite and fixed, such as the quality of cotton serving as the base of the contract, whether the contract is for gross or net weight, the amount of the fixed charges for delivery, and the comparative freight costs.

The influence of the factors in the other group involved in the accurate evaluation of a futures contract are not measurable at the time the contract is made. They are concerned with the rate of exchange, the extent of the delivery privileges of the seller in the matter of what may be delivered, the time and manner of settlement, the method of determining the class of cotton tendered, and the method of determining the relative values of different classes. These are not constant factors either because of the flexi-

bility of the rules governing them or because their interpretation is a matter of individual judgment.

Base of Their Contracts

The European futures markets, like the American futures markets, deal in what is known as a basis contract, that is, the price is made at the time of sale for the quality or class of cotton named in the contract. The relative price of a futures contract depends, therefore, very largely on what quality of cotton is specified in the contract as the base. If the contract called for middling 7/8-inch white cotton, as in American futures markets, and that were all that could be delivered, it would be equal exactly to the value of a spot contract for the same description of cotton. The fact is, such restricted delivery privileges would convert it into a spot contract. In order, therefore, to make a futures contract serve its proper function, the delivery privilege must be broadened, and this broadening cheapens the contract unless the effect is counterbalanced. The goal in making rules for the operation of American futures markets has been to so balance privileges as to make the value of the contract equal to about the spot value of middling 7/8-inch cotton, the basis grade, and that is more or less true in the European markets. The trouble is the balance does not always work, and each market has its own system of making balances.

Unfortunately, comparisons are further complicated by the fact that each of the futures markets in Europe is based on a more or less different class of cotton and each differs from the American markets. The Liverpool contract is the most nearly like the American. It is based on middling Universal Standards for grade and fair staple. Fair staple is supposed to be equal to 7/8-inch staple. This is not always true because fair staple is a descriptive term which includes the character of the cotton and not the mere length of its staple as is supposed to be the case in America. If the crop is large and of poor quality, cotton will probably pass as 7/8-inch in America and be rejected as less than fair staple in Liverpool. On the other hand, if the crop is short but the cotton

of good quality, much of it may be rejected if tendered on contract in America on the ground that it is too short and then be shipped to Liverpool and accepted on the ground that the evenness, strength, and twist of the fibres give it a spinning value equal to fair staple, even though in actual measurement it is less.

The Bremen contract is based on Universal Standards middling but of 28 m.m. staple. The monetary difference between Middling 28 m.m. and Middling fair staple is approximately 40 points according to the differences quoted by the Bremen market.

The Havre future delivery contract is, like the other two, based on middling Universal Standards for grade but differs from them in that it specifies Good Staple which the officials have described as equal to 15/16-inch American Government Standards.

Net Weight Contracts

In American markets, the price is calculated on the gross weight, i. e., the same price is paid for the bands and canvas on a bale as for the cotton. The weight of tare permissible in New York is 25 pounds per bale. In each of the European futures markets, the price is based on net instead of gross weight. No two of the European markets use the same method of arriving at the net weight. In Liverpool, the minimum amount of tare deducted on each 100 bales delivered is 900 pounds for bands and 3 9/16 per cent of the weight of the shipment for canvas, calculated after the weight of the bands is deducted. An excess or deficiency in the weight of either bands or canvas cannot be offset by a deficiency or excess in the weight of the other. It is almost if not quite impossible for the seller to tare his cotton so that he will get credit for exactly the net weight of his delivery.

The Bremen rules provide that 5 per cent shall be deducted for tare unless the receiver demands the deduction of actual tare. In that case, the weight of the bands on 50 bales may not exceed 204 kilos and the weight of the canvas 4 per cent of the gross weight after the weight of

bands is deducted. An excess of one may be offset by a deficiency in the other.

In Havre, the minimum deducted for tare is 6 per cent. Notwithstanding this provision the seller is not permitted to have more tare than 408 kilos of bands per 100 bales and 3 9/16 per cent canvas. Thus, while each of the European markets is supposed to have a net weight contract, the same hundred bales tendered in each market would show a different settlement weight.

The cost of freight and the charges necessarily incurred in delivering cotton on contract are known, or at least knowable, and thus can be discounted. It is enough to say that they are different for each market and play a part in setting the price level.

Delivery Conditions

The above facts may be considered the starting point from which to measure the value of a future contract, but they leave much to be determined. They must be supplemented by an understanding of the second group of factors. One must know the rules and customs of the markets with regard to the settlement of contracts through the delivery of spot cotton. No two of the cotton futures markets in the world based on American cotton are exactly alike in this regard. The chief differences lie in the relative values of qualities which may be tendered for delivery, the method of determining the tare and settlement weights, and the time and method of settlement.

Since the contract in the cotton futures markets is a basis contract, the seller if he wishes to fulfill his contract by delivering spot cotton has the right under such a contract not only to deliver bales of the class of the basis but also other classes which are of or within the limits of the deliverable classes fixed by the rules of the exchange.

The buyer of a futures contract may thus be tendered any one or more of the classes specified as deliverable. The greater the number of classes tenderable, the greater the handicap of the buyer and the cheaper the contract. The broad delivery privileges increase the problems of resale of the

cotton. If there are many classes deliverable, the buyer cannot afford to make advanced spot sales out of the stock he expects to accumulate through taking cotton on futures contracts.

The bulk of the American crop falls in the few classes made up of the white grades and medium staples. The off-colored cottons and short staple or long staple cottons form many comparatively small classes. The marketing of them is more or less a specialty. If they are made deliverable on contract, those who are not in a position to market such classes of cotton tend to avoid receiving cotton on contract and depress the value of it.

Many more classes of cotton are subject to delivery on a Liverpool futures contract than on one of the American futures contracts. In America, the Cotton Futures Act specifies the grades, 16 in all, including the 6 descriptive ones, which may be delivered. Low middling is the lowest. In Liverpool, no such definite limitations are made. The contract instead of specifying that nothing below low middling may be delivered says that nothing below the value of low middling for grade may be delivered. According to grade differences in America, this one provision on December 1, 1926, made seven more grades deliverable in Liverpool than are deliverable in America. In March last year, it made eleven more deliverable. At times, the provision may even cause fewer grades to be deliverable than in the American markets.

Of much more significance still, the Liverpool rules provide that the deliverer of cotton on a futures contract shall receive the full commercial value of all staple lengths not exceeding 1 3/16-inches. All of these provisions together tend to make the proportion of the crop tenderable on futures contracts without loss 5 to 8 times as much in Liverpool as in American futures markets, depending on the season.

In Bremen the rules specify the grades which may be tendered and they are approximately the same as in the United States. On the other hand, the rules regarding staple length are quite different. In Bremen, one may deliver any length from fair staple to 28-30 m.m. at the commercial differences above or below 28 m.m., the base of the contract. This pro-

vision alone multiplies several times the proportion of the crop tenderable on the Bremen contract over that tenderable on the American contracts.

The Havre contract is more nearly like the American contract in the matter of classes deliverable than either Liverpool or Bremen. The provision of chief significance is the fact that "Gulf cotton" is interpreted as the base of the contract and what is known as "Atlantic" may be tendered but at a discount of from 15 to 20 points. What is known as "Texas cotton" brings a premium over Gulf cotton. As in American markets, the Havre contract does not permit premiums for staple lengths.

Making Differences

The method of arriving at the value of the different classes of cotton tendered on a futures contract is an important factor in determining the value of that contract. Where there are many classes tenderable, it becomes increasingly difficult to rate each class according to its true value. If any class is over-valued, it tends to depress the value of the contract to the extent of the over-valuation, for the buyer will expect to receive and the seller will deliver the over-valued class. Thus, if the true value of strict low middling is 225 off and the official difference is set at 200 off, the value of the futures contract will tend to be depressed 25 points from its normal value.

The making of the differences to apply to the classes above and below the basis class is perhaps the most difficult administrative problem in the operation of a futures market. It is done differently in each of the European futures markets and each is different from the method in operation in New Orleans or the system of average differences used in New York and Chicago.

There is less red tape in dealing with the problem of class differences in Liverpool than in any other market. When cotton is tendered, the determination of the value of the tenders is referred to arbitrators, who are charged with the duty of valuing the cotton as such and not merely fixing differences for different classes, the "on" and "off" for grades and staples, above or below the basis class as in

American markets. The report of the arbitrators states that the bales are either passed or rejected, and if passed the value of each is stated as a specified number of points "on" or "off" the value of the quality of cotton named in the contract on the day of the tender. Any member may be an arbitrator. If either buyer or seller is dissatisfied with the award, he may have the case referred to the appeal committee. Twelve members are elected to this committee. They hold office for a year and are subject to reelection. The position is both lucrative and honorary. Decisions of this committee are usually final. In the administration of the Universal Standards for American cotton, the members of this committee are appointed by the Secretary of Agriculture of the United States as agents for determining the true classification of American cotton and their award is final in so far as Americans are concerned. Thus, in Liverpool, the arbitrators simply determine the value of the cotton and are not concerned with differences "on" or "off" as such for each class.

The method of making differences and classing the cotton in Bremen and Havre are entirely different from those in Liverpool. Differences are made in the two continental markets by committees who have nothing to do with classing the cotton. In Bremen, the committee establishes the differences for grades and staple one month in advance. It is done on one of the two last trading days of each month. The differences apply during the next succeeding month. In Havre, the differences are fixed in a similar way by a meeting of all the merchants but for three months in advance. While the methods in these two markets are similar, the objects in view and the results obtained are different. In Bremen the committee purposes to arrive at true commercial differences. In Havre they consciously undervalue all grades to prevent deliveries.

In Bremen, the cotton tendered on a futures contract is classed by a committee of paid experts. They know neither the names of the contending parties nor their claims. In Havre it is the same except the classers are paid fees and not a salary as in Bremen.

The time and manner of liquidation by delivery of spot cotton may be such as to depreciate the value of a futures contract. In American markets, the latest date for final settlement of a contract in a named month is the last business day of that month. In Liverpool, it is at least 10 days after that date and may be longer. In Havre, the last notice day is two days before the last business day in the month, but no definite day is prescribed for final settlement; the rule says "as quickly as possible." The Bremen rules provide that the last day for giving notice of tender is three days before the last, and final settlement must be made within four bank days from date of tender.

While the foregoing description does not include all the principles and practices which may cause differences in the price of contracts of one European futures market from the others, it has pointed out that differences exist and has shown the important reasons for their existence.

European Futures Markets As Laboratories

The fact that European futures markets are so different from ours makes them excellent laboratories in which to search for possible improvements applicable to our own markets. They have a number of rules and customs which would simplify our markets and tend to lessen the costs of marketing. For example, millions of dollars would be saved if American markets were to adopt a net weight contract and standard weight of tare for a bale of cotton regardless of the weight of the bale.

Americans as a rule have not been students of European cotton markets and marketing conditions. They too often find fault with foreign methods just because they are different. Many American cotton merchants go to Europe year after year and never even bother to learn European marketing methods. The fact that we do not know how to use European markets most effectively is a great detriment to the entire nation and to the cotton growers in particular in times like these when broad outlets and skillful merchandising are required to move an unusually large supply of cotton.

If instead of aiding in the financing of a holding movement which will probably do the farmers more harm than good in the long run, the Government and the banks would put on a campaign of "know the world's cotton markets and use them," this crop of cotton would be merchandised without resorting to famine prices. Other industries when they run into an overproduction do not spend their resources in a holding movement. They put on sales campaigns, hunt new markets, and stimulate old outlets. They put their funds out in credit to the buyers to stimulate purchases, rather than hold present production, which must inevitably get in the way of the oncoming supply.

The cotton futures markets with their future delivery contracts are designed to take care of heavy over or under production. They enable the owners of the raw cotton to more easily finance the mills and the mills in turn to finance their customers because each transaction may be hedged. Information from England indicates that the spinners there could get many more orders if they had available reasonably cheap means of financing the buyers. This same situation is true in most every European country. The spinners and the merchants are in a position to guarantee the price to the consumer within the life of a futures contract, for they can put a stop loss order in the futures market and thus secure a large measure of protection.

A careful analysis of European futures markets and the prices made in them will serve as an important indicator of the strength of world demand for American cotton. When the factor of significance in the market is the uncertainty of supply as is the case in the summer and fall, American futures markets should take the lead in price movements but when the supply becomes known, as it does about the 1st of December, it loses its force—it is water over the dam. The big "if" in the market passes over at that time to the demand side, and the question is, how much will demand pay for the known supply? The best measure of demand is the cloth market. The biggest and the one really international cloth market centers in the Royal Exchange in Manchester. It boasts more than 11,000 members and at least some from every important

country in the world. The leading members of the Liverpool Cotton Association are members of the Royal Exchange. Liverpool has thus the best opportunity to interpret the temper and strength of demand and, when demand factors are most important should initiate price movements.

A Rough Comparison Indicates That This is True

New York opens just one hour each day before Liverpool closes. The last cable from New York before Liverpool closes presumably leaves the two markets on a parity. Any gain or loss from that price during the rest of the day in New York is net change, and if New York is leading, Liverpool is said to be due to open that much up or down as the case may be. After the opening, Liverpool trades about four hours before New York opens. Whatever Liverpool lacks in complete adjustment to New York's close, whether up or down, New York is said to be due to open up or down that much in order to again bring about complete parity. Since they are both open at this time, straddles will force them to establish the normal parity and of course the stronger market drives the price its way.

On the 21 days in October, 1925, in which direct comparisons without intervening holidays were possible, Liverpool's opening price followed the lead of New York's close on the previous day 17 times; in one instance, there was no change, and in the other three changes were in the opposite direction. In only one instance was the Liverpool response the exact amount due; in 14 instances the change was in the direction of that indicated but greater than was due; and in the other two of the 17 instances Liverpool's change was not as much as was due. During the 21 days Liverpool was due to change, on her opening, a total of 299 American points to stay even with New York. She actually changed 376 points; of these, 340 were in the direction indicated by New York's close, and only 36 were in the opposite direction.

Based on a comparison of Liverpool's price of the last cable before New York's opening on the same morning, New York followed the change indicated by Liverpool only 10 times out of 21, went in the opposite direction 10 times, and made no

change once. New York was due to change a total of 215 American points to even her position with Liverpool's price at the time of New York's opening. She actually followed 132 points, and went in the opposite direction 119 points.

During the 17 days in March, 1925, a period chosen at random, Liverpool was due to change 257 points following the change occurring in New York between Liverpool's close and New York's close. She actually changed 208 American points. Liverpool changed in the direction due 13 times, went in the opposite direction 3 times, and one time did not change. Based on the last official price in Liverpool cabled to New York before New York's opening, the latter was due to change 83 American points. It changed 112. Of the 17 instances, she changed in the same direction 13 times; in the opposite direction 3 times. The 13 times New York followed Liverpool accounts for 73 of the 112 points, and the three in which she went in the opposite direction accounted for 30. In one case, Liverpool indicated no change and New York went down 9 points.

COST OF PRODUCTION, SUPPLY AND DEMAND, AND THE TARIFF [1]

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Wheat, sugar, milk and cream, butter, cheese, eggs, vegetable oils—these are some of the farm products, whose cost of production has been, or is being, investigated by the United States Tariff Commission in accordance with Section 315 of the Tariff Act of 1922, which empowers the President, within certain limitations, to change duties by proclamation. This has come to be known as the "flexible tariff" provision. The substance of it is that when the President finds upon investigation that any duty contained in this act does not "equalize" the difference in the cost of production in the United States and the principal competing country, he shall raise or lower the duty by an amount necessary to "equalize" the difference, provided that no change in the rate of duty shall exceed 50 per cent except in the special case when the basis of assessing the rate of duty may be changed from the foreign value of the article concerned to the American selling price. The President is, however, specifically denied authority to transfer an article from the free list to the dutiable list, or from the dutiable list to the free list. The act further provides that the investigation to assist the President in ascertaining the difference of cost of production shall be made by the United States Tariff Commission, and that he shall issue no proclamation changing a duty until an investigation has been made.

As there is in any country a variety of costs at which any commodity is produced, it is possible to use many different methods of comparing costs of production in two countries. We may, for example, compare the arithmetic means, the geometric means, the medians, the modes, or any other measure of position of the cost distributions in the two countries and draw quite different conclusions as to what rate of duty will "equalize" the cost of production in the two countries. The

[1] This paper was read at the Seventeenth Annual Meeting of the American Farm Economic Association at St. Louis, December, 1926. Based on the last three chapters of the author's "Statistical Laws of Supply and Demand," to be published shortly by the University of Chicago Press.

United States Tariff Commission favors the comparison of the arithmetic means of the cost distribution in the two countries, although some members of the Commission would prefer a comparison of the "bulk-line" costs.

The cost of production formula for tariff making has been vigorously attacked by several authorities. Thus a former Chairman of the United States Tariff Commission, Dr. Thomas Walker Page, argues that "it is rarely possible to ascertain accurately the difference in costs of production at home and abroad. To use as the basis of a general tariff act a thing so fleeting, evasive, or shadowy would be neither right nor possible." [2] Professor Taussig, the first Chairman of the United States Tariff Commission, is equally vehement in his denunciation of this quasi-automatic formula, though on slightly different grounds.[3] With these criticisms, however, we shall not concern ourselves. In fact, we shall assume for the purpose of this paper that it is entirely possible and practicable to obtain adequate and unequivocal cost data at home and abroad; that there are no difficulties of any importance connected with joint costs, original investment, entrepreneurs wages as distinguished from his profits, market boundaries, transportation costs, size of sample, etc., etc.; and we shall address ourselves to certain theoretical aspects of the cost of production formula which have not, perhaps, received the attention that they deserve. More specifically we shall attempt to establish the following propositions:

1. Such accounting cost of production data as are gathered by the United States Tariff Commission, the Federal Trade Commission and other public and private agencies, do not lead to the theoretical cost of production curve as is sometimes assumed by workers in this field.

2. Even if it were possible directly to deduce the theoretical cost curve, it could not be compared with the demand curve; the latter can be compared only with the supply curve.

3. Scientifically to determine the effect of a tariff on conditions of supply we must work, not with cost curves, but supply and demand curves.

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[2] Thomas Walker Page, Making the Tariff of the United States, McGraw-Hill, 1924, p. 99.

[3] F. W. Taussig, The United States Tariff Commission and the Tariff, America Economic Review, Vol. XVI, No. 1 Supplement, March 1926, pp. 170-181.

4. Modern statistical methods enable us to deduce concrete, statistical supply and demand curves for a good many commodities, and consequently to measure the effect of a given duty on the price, domestic production and imports of the article concerned.

This will be illustrated by reference to the statistics of sugar.

I. *The Relation Between the Accounting Cost Curve and the Theoretical Cost Curve*

The type of accounting cost curve with which we have all become familiar through the publications of the War Industries Board, the Federal Trade Commission, the United States Tariff Commission, and other public and private agencies is nothing more than the *frequency curve of costs, cumulated upward.* It is the familiar ogive curve of costs, the cumulation being from the lowest to the highest cost. The upward slope of this curve, it would appear, has given rise in some quarters to the belief that this curve is the statistical equivalent of the one that is used in works on economic theory to represent conditions of diminishing returns or increasing cost. Nothing is farther from the truth. Any frequency distribution of costs may be cumulated either upward or downward. Just as it is wrong to conclude that a downward-sloping ogive represents an example of increasing returns, so it is equally wrong to conclude that an upward-sloping ogive based on the same data represents an example of diminishing returns.

There are important differences between the accounting cost curve and the theoretical cost curve. In the theoretical curve, as conceived by Auspitz and Lieben,[4] and by many other economists who followed them, the abscissas represent quantities "which may be produced annually" by *all* the producers of the article under consideration. A change in the abscissa of the theoretical curve represents, therefore, a change in the *scale of production* from year to year. In the accounting cost curve, which appears to be the same as Marshall's "particular expenses curve," the abscissas represent quantities which were produced by the various producers during the year or period

[4] Untersuchungen über die Theorie des Preises, 1889, French Translation, Recherches sur la Theorie du Prix, Paris, 1914, pp. 2-5.

in question. In this curve the scale of production is fixed and is represented by the base of the curve. This base is made up of the bases of a series of adjoining (narrow) rectangles, arranged in ascending order, each rectangle representing by its base the output (and by its altitude the cost) of one producer during the year under consideration. The theoretical cost curve is expressed by a series of hypothetical or conditional statements thus: "If the annual (or other periodic) output of all the producers were so much, the total cost would be so much; if the annual output were so much again, the total cost would correspondingly vary, and so on." [5] (This does not mean, of course, that the theoretical curve may not be based on inductive investigations). The accounting cost curve is expressed by a series of categorical statements thus: "During the year (or period) covered by this cost survey, the producer who had the lowest average cost of production per unit had an output of so many units and a total cost of so many dollars; the producer whose average cost per unit was just above that of the lowest cost producer had an output of so many units again, at a cost of so many dollars per unit, making the total cost of the two producers so much; and so on."

Another important difference between the theoretical and the accounting cost curve is that the former does, while the latter does not, give the true relation between changes in cost and corresponding changes in output.[6] The cost data which it has thus far been found possible or practicable to obtain show the *average* cost per unit and the output of each factory under consideration. They do not show the *variation* in the costs of each factory as affected by the factory's output. The result is that the output corresponding to given unit (and, hence, total) cost can not be derived accurately from such data. Suppose that of several producers one has an output of 1000 units at an average cost of $1 per unit and the other has an output of 2000 units at an average cost of $2 per unit. This does not mean that all of the 1000 units of the first producer cost $1

[5] The reason why this definition is given in terms of *total*, rather than average or marginal, costs will be explained later.

[6] This point was, to the best of our knowledge, first made by Professor Jacob Viner. In his review of Philip G. Wright's "Sugar in Relation to the Tariff (Journal of the American Statistical Association, December, 1924, p. 545), there appears this statement: "* * * the economist would ordinarily contend that there are different costs for different portions of the output of each producer, and that every producer tends to be a marginal producer with respect to a portion of his output."

apiece to produce and that all of the 2000 units of the second producer cost $2 apiece. Some of the 1000 units may have cost more than $2 apiece and some of the 2000 units may have cost less than $1 apiece. A true theoretical cost curve would show the relation between any given cost and the true cumulative output corresponding to this cost. The accounting cost curve, however, can not show this, for it does not take into consideration the fact that the various units of a factory's output are produced at different costs.

The economists who first made cost of production surveys usually organized their data in the form of ogives. They would have done better to have organized the same data in the form of frequency curves, for then the impression would not have arisen that the ogive is the same as the theoretical cost curve and that it may even be considered a supply curve.

II. *The Relation Between the Theoretical Cost Curve and the Supply Curve*

The cost curve gives the relation between the cost of production of a commodity and the quantity produced. By the cost of production of an article Auspitz and Lieben mean "the minimum amount of money which all the producers of this article, taken together, must receive in order to be able to produce it without loss." [7] The supply curve gives the relation between the marginal cost and the quantity produced. The two curves are not necessarily the same. The only condition of the cost curve is that the total cost of production of a greater quantity shall be greater than the total cost of production of a smaller quantity, for otherwise the greater quantity would be produced and if needful be partially destroyed. Mathematically this is expressed by saying that

$$\frac{dy}{dx} > 0 \quad . \quad . \quad . \quad . \quad (1)$$

where $y = \phi(x)$ is the total cost of production (not the cost per unit) and x is the production. The relation between supply and cost of production must therefore be sought in the nature of marginal costs.

[7] *Op. cit.*, pp. 2-3.

One type of curve fulfilling this condition is shown in Table 1 (columns I and II) and is also represented graphically in Figure 1A (solid bars). The abscissas of this curve represent assumed quantities which can be produced and sold in a given period of time—say, one year—and the ordinates (the altitudes of the rectangles) the *total costs* of production. Thus when the cumulative output is one ton, the total cost is $1.00. When the cumulative output is two tons the total cost is $3.00. When the cumulative output is three units the total cost is $6.00, etc.

Corresponding to the curve of total costs there is a curve of average unit costs. The latter is shown in column III of Table 1, and is represented graphically in Figure 1B (solid bars). Thus when the output is one ton the average cost is $1.00 per ton. When the output is two tons the average cost per unit is $1.50 per ton. When the output is three tons the average cost per unit is $2.00 ($6 ÷ 3) per ton, etc.

However, the cost of production shown in these curves is not what producers, taken collectively, will actually receive. How can the amount actually received by producers be determined? In short, what is the relation between cost of production and price?

Let us assume that the equilibrium production for any given period is two tons. Referring to Figure 1 and column V, Table 1, we see that the cost of the second ton is $2.00 as compared with $1.00 for the first. The cost of the second unit, or $2.00, may therefore be looked upon as the *marginal cost.* Under free competition, the marginal cost per ton is equal to the price, or the price is also $2.00 per ton when two tons are produced. But in a free market each unit of the product must be sold at the same price as any other unit, so that the first unit will also sell for $2.00. This means that the sum of money received by all producers will be $2.00 + $2.00, or $4.00. This is indicated by the altitude of the second (dotted) rectangle in Figure 1A. (See also colmun IV of Table 1.) Now let us assume that the equilibrium output is three tons. The total cost is then $6.00, and the cost of the third, or marginal, ton is $3.00. But under free competition there can be only one price for the same commodity at the same time, which means that all producers will receive $3.00 per ton or the total output (3 tons),

will be sold at 3 × \$3, or \$9.00. This is indicated by the altitude of the *third* (dotted) rectangle in Figure 1. Proceeding in this manner we obtained a series of (theoretically narrow) rectangles which, when joined together, give the curve of cumulative marginal costs (column IV, Table 1). Dividing the cumulative marginal costs (receipts of producers) by the number of units produced, we obtain the ordinary curve or marginal (unit) costs, or the supply curve. This is indicated by the dotted rectangles of Figure 1B. (See page 199)

By comparing Figures 1A and 1B it will be seen that the dotted rectangles represent by their altitudes *"the addition to the total costs incident to the production of an additional unit."*

Mathematically the relation between the total supply curve and the total cost curve is

$$\Phi(x) = x\phi'(x) \quad . \quad . \quad . \quad . \quad (2)$$

where $\Phi(x)$ is total supply curve and $\phi(x)$ is the total cost curve. If we divide ordinates of the total supply curve by their corresponding abscissas, we obtain a new curve $\phi'(x)$, or

$$\frac{\Phi(x)}{x} = \phi'(x) \quad . \quad . \quad . \quad . \quad (3)$$

TABLE 1

Numerical Illustration of the Difference Between the Theoretical Cost Curve and the Supply Curve

I	II	III	IV	V
Cumulative Output	Cumulative Total Costs	Average Cost Per Unit II ÷ I	Cumulative Marginal Costs (Receipts of Producers)	Marginal Costs of Each Successive Unit of Output
Tons	Dollars	Dollars	Dollars	Dollars
1	1.00	1.00	1.00	1.00
2	3.00	1.50	4.00	3.00
3	6.00	2.00	9.00	3.00
4	10.00	2.50	16.00	4.00

It will be noticed from Figures 1A and Figure 1B that the supply curve (dotted rectangles) is above the cost curve. This is because in the hypothetical example under consideration, the total cost curve was drawn concave upward. When the total cost curve is concave downward the supply curve is *below* the cost curve, and when the total cost curve is a straight line, the supply curve coincides with the cost curve.

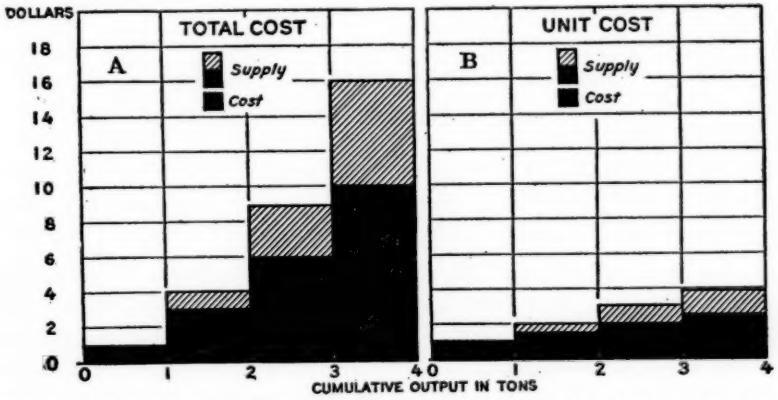

Figure 1—Theoretical Relation between the Cost Curve and the Supply Curve under Conditions of Increasing Costs.

Parenthetically it may be remarked that the shape of the total cost curve not only determines the shape of the corresponding supply curve, but it also enables us to state the laws of cost in an unequivocal manner.[8] But this is beyond the scope of the present paper.

To summarize: There are important differences between the cost curve and the corresponding supply curve. To confuse the two curves for tariff making or other purposes is apt to lead to erroneous conclusions. Price is determined not at the point where the demand curve crosses the cost curve but where it crosses the supply curve.

III. *The Effect of a Tariff on Conditions of Supply*

Suppose the tariff on an important commodity—say sugar—is increased by one cent per pound. By how much will the tax raise the price paid by the consumer? What will be its effect on consumption? On domestic production? On imports? On the profits of the sugar industry?

These are the important questions on which depend the economic wisdom or social desirability of modifying the present tariff rate. They are of recurrent interest at nearly every presidential election. One would expect therefore, that professional economists would be in a position to provide reliable quantita-

[8] Cf. Cournot, A. Researches into the Mathematical Theory of Wealth, pp. 58-61, and Edgeworth, F. Y., Papers Relating to Political Economy, Vol. I, pp. 61-99.

tive answers to these questions. But not only have American economists been found wanting in this respect, but they have, with a few glorious exceptions, even failed to develop the theory and technique without which no quantitative answers are possible.

This condition is to be deplored, because the methods which are commonly employed in attacking these problems are invalid. As an example, take the question of the effect of the tariff on only one factor—the price of the commodity. The popular method of deriving an answer to this question consists of drawing up tables or graphs showing that prices, after the imposition of former tariffs, have risen (or fallen). Of course, this method proves nothing with respect to the effect of the tariff on prices, because it does not eliminate the other causes which have contributed to the price changes. What we desire to know is not how much higher the price will be after the imposition of a tariff than it was before, but how much of the increase is due to the tariff, and how much to other causes. This is a problem which can not be solved by "common sense," or "practical" methods; for, as Edgeworth put it, it is "too complicated for the unaided intellect to deal with." Recourse must be had to analytical methods. We therefore turn for guidance to economic theory.

The teachings of economic theory relative to the effect of a differential tax on the price of the taxed commodity are very definite, and point the way to a solution of this problem. They may be stated as follows:[9]

(1) The more urgent our demand for the taxed commodity, that is, the more "necessary" the commodity is to us, the more nearly will the price rise to the full amount of the tax.

(2) The greater the increase in the quantity of the commodity offered in our market from home (untaxed) sources in consequence of a given change, the less will the price change be.

(3) The greater the change in the quantity offered from the taxed sources, the greater will the rise be.

The foregoing three propositions may be summarized as follows:

"Other things being equal, when one source of supply is

[9]Cf. Pigou, A. C.—The Known and Unknown in Mr. Chamberlain's Policy, Fortnightly Review, January, 1904, p. 44.

taxed and the other left free, the rise of price will be greater, the greater are the output and elasticity of the taxed source relatively to the untaxed source." [10]

These conclusions may also be expressed in mathematical symbols as follows:[11]

Let P be the price in the absence of any tax and let S_D and S_f be the present supplies to the home market from non-dutiable (domestic) and foreign sources, e_D and e_f their respective elasticities of supply and η the elasticity of the domestic demand curve (η is necessarily negative). Then, if T_f be the tax on the foreign supply, "and if we assume that for the small portion of the demand and supply curves with which we are concerned, the elasticities do not alter," the change in price, $\triangle P$, is given by the formula:

$$\triangle P = T_f \frac{e_f S_f}{e_f S_f + e_D S_D - \eta (S_D + S_f)} \quad \ldots \quad (4)$$

In deriving this formula Professor Pigou has assumed that there is *only one source of demand.* When there are two sources of demand—say, the home market and the rest of the world—the formula becomes

$$\triangle P = T_f \frac{e'_f S'_f - \eta_f D_f}{e'_f S'_f + e_D S_D - \eta_f D_f - \eta_d D_d}$$

$$= T_f \frac{1}{1 + \dfrac{e_D S_D - \eta_d D_d}{e'_f S'_f - \eta_f D_f}} \quad \ldots \quad (5)$$

where D_d and D_f are the quantities demanded in the home market and abroad, η_d and η_f their respective elasticities of demand, S'_f the *total foreign* supply (and not simply the supply to the home market from foreign sources, which was indicated by

[10] Pigou, A. C. Economics of Welfare, 1920, p. 942.

[11] See the following works by A. C. Pigou:
(1). The Known and Unknown in Mr. Chamberlain's Policy, Fortnightly Review, Jan., 1904, p. 44.
(2). Protection and Preferential Import Duties, 1906, pp. 94-95.
(3). Economics of Welfare. 1920. p. 942.
I have taken the liberty to modify some of the symbols used by Professor Pigou.

S_f in (4)), and e'_f the elasticity of the total foreign supply. The other symbols have the same meaning as in formula (4).[12]

It is evident, therefore, that economic theory offers a satisfactory solution of the problem of effect of a tariff on the price of a commodity, provided we can determine the domestic and foreign supply and demand curves.

IV. *Statistical Laws of Supply and Demand*

The derivation of concrete, statistical laws of supply and demand is beset with many difficulties, both theoretical and practical.

In *theory* the law of demand for any one commodity is given only on the assumption that the prices of all other commodities remain constant (the *ceteris paribus* assumption). A similar assumption is made for the law of supply. These, however, are unwarranted assumptions.

The validity of the theoretical laws of supply and demand is limited to a point in time. But in order to derive concrete, statistical laws our observations must be numerous; and in order to obtain the requisite number of observations, data covering a considerable period must be used. During the interval, however, important dynamic changes take place in the condition of the market. These changes obscure the relation between the prices and the amount of the commodity demanded or supplied.

Then there are difficulties connected with the statistical data that are available. Thus, as soon as we attempt to deduce the statistical law of supply for sugar we must decide on these questions:

(1) What shall be taken as the "supply" of sugar in the United States, and

[12] Formula (5) was deduced by Philip G. Wright, of the Institute of Economics, and quite independently, by Theodore O. Yntema, of the University of Chicago. I am indebted to these gentlemen for helpful suggestions. This formula is, however, identical with Professor Pigou's *second* formula, if for his domestic and foreign *production*, and their respective *elasticities of production*, we substitute the domestic and foreign *supply*, and their respective *elasticities of supply*. See references (1) and (2) in note 11, above.

Both formulas (4) and (5) are based on the assumption of straight line demand and supply functions—an assumption which is not contradicted by the empirical supply and demand functions which have been derived for sugar. The quantities appearing in these formulas are "variable constants." When applied to any problem they must be given the values which they assume at the point of equilibrium established *before* any change is made in the duty.

It is perhaps necessary to remark that in any *practical* problem, the change in price, $\triangle P$, may be best obtained by the graphic method, which, of course, makes no assumption whatsoever about the nature of the demand and supply curves.

(2) What price is most logically related to the supply?

The sugar consumed in the United States is derived partly from domestic production (beet and cane), partly from imports from insular possessions on which no duty is levied, partly from imports from Cuba on which only 80 per cent of the duty is levied, and partly from imports from the rest of the world on which the full duty is levied. Which of these series—domestic production, imports from insular possessions, imports from Cuba, or net imports from foreign countries, or the sum of the four (i. e., domestic consumption, approximately)—shall be taken as the "quantity supplied" for the purpose of deducing the statistical law of supply?

The price series at our disposal also raise several questions. There are retail prices and wholesale prices; and of the latter, prices of raw sugar and prices of refined sugar. There are prices for the New York market and prices for other markets. Which of these prices are best suited for our purposes? How shall the monthly quotations be averaged so as to exhibit most clearly the relation between changes in price and changes in the quantity supplied? Shall the prices be for the calendar year, for the fiscal year, for the harvesting period, for the planting season?

Several other difficulties of the statistical laws of supply and demand may be mentioned. It is these difficulties which caused even some of the greatest mathematical economists—Walras, Edgeworth, and Pareto—to doubt the possibility of deriving concrete, statistical laws of demand and supply. It must be admitted that some of these difficulties have not been overcome yet. Most of them, however, can be overcome through the judicious use of modern statistical methods. It is these methods which make it possible to derive statistical laws of supply and demand, to determine their margins of error, and to measure the shifting of these curves from time to time as a result of dynamic changes.

It would, of course, be beyond the scope of this paper to summarize the work that has been done in this field. In what follows an attempt will be made to estimate the effect of the tariff on the price of sugar from a knowledge of the various constants called for by formula (5) which have already been determined elsewhere.

V. *Effect of the Tariff on the Price of Sugar*

The various constants which are called for by formula (5) have either been determined or can be estimated.

The elasticity of the United States demand (η_d) has been found, by four different methods, to be approximately equal to —0.5 under "normal" conditions.[13] That is to say, based on the experience of 1890 to 1914, an increase in the price of sugar of 1 per cent will reduce consumption by ½ of 1 per cent under normal conditions.

The elasticities of the domestic and insular supplies vary according to the price series used and according as the supplies to the home market from domestic and insular sources are combined or treated separately. The elasticity of the combined supply from the two sources (e_D) is between +0.6 and +0.8, or an increase in the price of sugar of 1 per cent will "call forth" an increase of between 0.6 and 0.8 of 1 per cent in the quantities derived from non-dutiable sources.[14]

The only coefficients that have not as yet been determined are the elasticities of the *foreign* demand and supply. We have, however, shown elsewhere [15] that the elasticities of the total *world* demand and supply, which, of course, include the demand and supply of the United States, are $\eta_w = -0.6$, and $e_w = +0.6$, respectively. As these figures are nearly equal, respectively, to the elasticities of the domestic demand and the domestic and insular supply, we may assume that even if the United States consumption and the United States production (including imports from insular possessions) had been eliminated, respectively, from the totals of world demand and supply, the resulting data would still have yielded approximately the same values for the two coefficients as those just given. We may, therefore, to a first approximation, assume the elasticity of the *foreign* demand (i. e., world demand *minus* United States demand) to be $\eta_f = -0.6$, and the elasticity of the *total*

[13] See Schultz, Henry, The Statistical Law of Demand as Illustrated by the Demand for Sugar, Journal of Political Economy, Oct. and Dec., 1925. The period covered by this study is from 1890 to 1914 (calendar years).

[14] See Schultz, Henry, The Statistical Law of Supply and Demand, to be published shortly by the University of Chicago Press. The period covered by the study of supply is from July, 1903, to June, 1913, during which there was no change in the duty on raw sugar.

[15] Schultz, H., *op. cit.*

world supplies (i. e., world supply *minus* United States and insular supply) to be $e'_f = +0.6$.[16]

There remain to be determined the quantities that are normally demanded and supplied in the home market and abroad (i. e., in the rest of the world). Since these quantities must be the *equilibrium quantities* established before the imposition of the duty, they ought to be determned from the *trends* (or of the averages of the *link relatives*) of the same quantities for the year immediately preceding the change in the duty. For the present purpose, however, we may, with sufficient accuracy, take the *average annual* consumption and production at home and abroad during the 5-year period which ended in June, 1914, as the "equilibrium" or "normal" quantities demanded and supplied[17] in the taxed and untaxed sources. These are shown in Table 2:

TABLE 2

Annual Consumption and Production of Sugar in the United States and in the Rest of the World. Average, 1909-1914 [1]

(Millions of Short Tons)

Item	World Total	United States	Foreign Countries
Demand (Consumption)	18.90	3.98	14.92
Supply (Production)	18.90	1.96[2]	16.94

[1] Based on Tables 381 and 386 of the Agricultural Yearbook, 1924.
[2] Includes imports from insular possessions.

Thus, the "normal" quantities of sugar demanded annually in the home market and abroad during the period under consideration were, respectively, $D_d = 3.98$, and $D_f = 14.92$ millions of short tons; the "normal" quantity supplied annually to the home market from domestic and non-dutiable sources was $S_D = 1.96$ millions of short tons; and the "normal" total foreign supply was $S'_f = 16.94$ millions of short tons per annum. These figures are the *weights* that must be applied to the coefficients of the elasticities of supply and demand in formula (5).

Table 3 brings together the values that have been assigned to the eight constants of this formula.

[16] A distinction is thus made between e_f, the elasticity of that part of the foreign (taxed) supply which reaches the United States, and e'_f, the elasticity of the total foreign supply.

[17] It should be kept in mind that the supply curves were based on data for the period of 1903-1914.

TABLE 3

Elasticities of Demand and Supply of Sugar in the United States and Abroad, and the Average Annual Demand and Supply During 1909-1914

Item	United States Symbol	United States Value	Foreign Countries Symbol	Foreign Countries Value
Elasticity of Demand	η_d	—0.5	η_f	—0.6
Elasticity of Supply	e_D	+0.6[1]	e'_f	+0.6
Quantity Demanded (Millions of short tons)	D_d	3.98	D_f	14.92
Quantity Supplied	S_D	1.96[2]	S'_f	16.94

[1] Relates to United States production and imports from insular possessions.
[2] Includes imports from insular possessions.

Substituting these values in (5), we obtain

$$\Delta P = T_f \frac{1}{1 + \frac{0.6\ (1.96) + 0.5\ (3.98)}{0.6\ (16.94) + 0.6\ (14.92)}} = 0.86\ T_f \ . \quad (6)$$

or the increase in price is 86 per cent of the duty. That is, if during 1909-1913 the duty on sugar had been increased or decreased by 1 cent per pound, the normal effect would have been to increase or decrease the price per pound by 0.86 of one cent. The assumption is made, of course, that sufficient time has elapsed after the change in the duty for the new equilibrium to be established between supply and demand.

In applying formula (5) two interesting questions present themselves: First, should not the figures of those countries which consume all that they produce be eliminated from the totals for "foreign countries," because this production does not affect the world price? Second, if this is done, would not the result be a significantly lower figure for the increase in price due to the tariff? The answer is that there is no self-contained economy with respect to sugar whose production is of sufficient importance to affect the world price. Even if the entire output of India,[18] whose production is second only to that of Cuba, be eliminated from the totals for the foreign countries (see Table 2), the effect would only be to reduce ΔP in equation (6) from $0.86\ T_f$ to $0.83\ T_f$.

[18] India's average annual production for the period from 1909-10 to 1913-14 was 2.650 million short tons. See Agriculture Yearbook, 1924, Table 386.

Another question that presents itself relates to the accuracy of the elasticity of the domestic supply. While four different methods give practically identical values for the elasticity of the United States demand, the same is not true of the elasticity of supply. As has already been pointed out, the elasticities of the domestic and insular supplies vary according to the price series used and according as the supplies to the home market from United States and insular sources are combined or treated separately. The elasticity of the combined supply from the two sources (e_D) is between $+0.6$ to $+0.8$, depending upon the price series used.[19] In the foregoing computations e_D was given the lower value, or $+0.6$. Would not the assumption that the elasticity of the combined supply is nearer to the upper limit, or $+0.8$, lead to a radically different conclusion as to the effect of a tariff on the price of sugar? By substituting different values for e_D in equation (5), we can easily see that even if the elasticity of the domestic supply be taken as high as $+1.0$, this would have only a relatively small effect on $\triangle P$, or a decrease in its value from $+0.86T_t$ to $+0.83T_t$.

We conclude, therefore, that under such average conditions of demand and supply as had prevailed during the five years before the war, the increase in price due to a tariff on sugar would be approximately 85 per cent of the duty. *Whether the present tariff on sugar has a greater or less effect on price than it would have had during the five years before the war, depends on whether the ratio of the output and elasticity of the taxed supply to the output and elasticity of the untaxed (domestic and insular) supply is greater or less than it was during 1909-1913.*

Formulas and methods similar to those employed above may also be derived for measuring the probable effect of any tariff on imports, domestic production and consumption, and the revenue derived by the government. Such information would not point the way to a "right," or "correct," tariff, as such terms are incapable of definition. It would, however, indicate the probable *consequence* of the present or proposed tariff, and the duty-levying agency would be in a position to weigh and balance the advantages of any tariff against its disadvantages.

[19] Schultz, H., *op. cit.*

It is, perhaps, unnecessary to add that the use of the methods herein discussed presuppose a general knowledge of the industry or commodity under consideration.

VI. *Summary and Conclusion*

In this paper we have established the following propositions:

First: Contrary to the prevailing impressions, there is no direct connection between the type of accounting cost curve that is used by the United States Tariff Commission, the Federal Trade Commission, and other public and private bodies and the true cost curve that is discussed in most texts of economic theory. The true cost curve shows changes in annual (or periodic) output (i. e., changes in the *scale of production*) corresponding to changes in unit costs. The accounting cost curve shows nothing of the kind. The latter can not be obtained from cost data for any one year.

Second: Even if it were possible directly to obtain the theoretical cost curve, it could not be brought into juxtaposition with the demand curve, for price is determined not at the point where the demand curve crosses the cost curve, but where it crosses the supply curve. The supply curve, or curve of marginal costs, is above the cost curve under conditions of increasing costs. It is below the cost curve under conditions of decreasing costs, and it coincides with the cost curve under conditions of constant costs.

Third: In order to determine scientifically the effect of a tariff on conditions of supply, we need to know the statistical demand and supply curves for the home market and for the rest of the world. Modern statistical methods enable us to deduce these curves from the data relating to prices, consumption, production and imports.

Fourth: During the period of 1909-1913, the effect of a change of 1 cent in the tariff on sugar would have been to change the price by about 0.85 of 1 cent.

The effect of a tariff on domestic consumption, imports, and domestic production can also be determined by methods similar to those used above.

In view of the foregoing it is submitted that the more scientific approach to the tariff problem is through the methods sug-

gested in this paper, which take into consideration the forces behind both demand and supply, rather than through the cost of "bulk-line" method, although the utility of the latter for some purposes is not denied. The supply curve has several advantages over the cost curve. First, it overcomes theoretical objections to the cost method mentioned above, and second, it does not lead us into the metaphysics of farm costs. All it tells us is the relation between a given change in price and the corresponding change in supply. It is a summary presentation in quantitative terms of how producers react to the price stimulus. It does not inquire why one producer will react one way and another producer in another way and then make their reactions comparable by imputing certain prices to the invested capital, labor, etc., as is done by the cost method. It simply shows what is the average reaction of producers to a given change in price. That is, it summarizes in a sort of "mental shorthand" the whole mesh of environing conditions affecting supply. A corresponding statement may, of course, also be made of demand.

The methods advocated in this paper will not lead to a "just" or an "equitable" tariff, or to any automatic formula for tariff making, for such a formula is, from a scientific point of view, a will-o'-the-wisp. They will, however, tell us what the effects of any given tariff are likely to be on prices, production, and imports, and the tariff-making authority could then weigh the advantages of any given tariff against its disadvantages.

To the economist, however, these methods have an additional significance, for they tend to clarify his own thinking and to give definiteness to his conclusions. It is something to be able to say that the elasticity of demand of a certain commodity is —0.6 and not —6.0, or any other value.

The foregoing remarks are not intended as an argument for a change in duties on the basis of the methods advocated in this paper, for we realize that these methods are comparatively new, that their advantages and disadvantages have not as yet been fully explored, and that economists as a group are not as yet ready to recommend them. These, however, are no valid reasons why the issues raised by the newer methods should not receive the attention of scientific economists.

JOINT COOPERATIVE STUDIES IN THE FIELD OF RURAL LIFE [1]

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BUREAU OF AGRICULTURAL ECONOMICS

In this paper no attempt will be made to encompass or to outline the field of research in social science as applied to rural life. No time will be spent in trying to designate the respective parts of the field which fall to the sociologists and to the economists. Rather, an effort will be made to show (1) that in the major problems dealing with farm life both the social and the economic aspects are involved and (2) that studies in either field must be augmented by a careful consideration of the principal factors in the other field if they are to yield a maximum of results for time and money expended in conducting them. Finally the attempt will be made to outline in project form one of several important problems awaiting solution through the joint efforts of sociologists and economists.

That both the economic and the social aspects are involved in the major problems dealing with farm life is indicated by the different viewpoints expressed by economists and sociologists who have visited and studied the rural life of Denmark during the past decade. Some of the economists, on their return, have concluded that the rural progress of Denmark is due to economic manipulations, cooperative marketing, primarily. Some of the sociologists have said, "It isn't economic, it goes deeper than cooperative marketing, it is the spirit of Denmark's rural people as expressed in her folk schools and in her rural institutions." But some, and doubtless the majority, of both the economists and the sociologists are agreed that it is a coordination of the economic and the social factors or aspects which have enabled rural Denmark to throw off her yoke of oppression. And this group of economists and sociologists are pretty much in agreement, also, that only the fullest and the best directed use of human traits and human capacities can account for the great strides made by this little kingdom during the past three-quarters of a century.

[1] Adapted from a paper read at the luncheon meeting of the American Farm Economics Association, and the Rural Sociology Section of the American Sociological Society, at St. Louis, December 30, 1926.

The fact that studies in either field must be augmented by a careful consideration of the principal factors in the other field is evidenced from the following "case" reports of farm families. These reports are given as recorded by a field worker taking survey records on the farmer's standard of living.

"Two families visited today were on about the same economic level apparently and had the same number of children. Both inherited their farms, married sisters and started out on adjoining farms. The inside of one home was more like a pig pen than a dwelling place. The other was a splendid, well-kept home. There was no difference in the size of the houses. The children of one home were in high school, interested in music, talked of books they had read, had a library of one hundred books, and a wholesome outlook on life. The other home had twenty books and no musical instruments, the children were dirty, cursed fluently and could talk only of hunting. The oldest daughter was just back from the city, where she said she had been a housekeeper. She had learned quite a bit of cute slang. Her father was a chronic grouch seemingly disgusted with himself, and the mother seemingly had given up all ambition if she ever had any. The father and mother of the other family were interested in churches, roads, and schools."

Joint economic and sociological study is the only means of uncovering the fundamental reasons for the difference in the standard of living and the attitudes of these two families. The economic consideration must be supplemented by sociological and psychological study for the basic factors which set the standard of living at its specific level.

Let us consider hastily two more families as described by a field worker. "I walked a mile and a half down the hill to a little red house on one side of the road and two old patched-up barns on the other. One of the barns was over a ditch through which water flowed during a rain. Below this barn in the ditch was a mudhole fed by a spring from the hillside. In the mudhole were eight ducks and three children, the oldest about seven years of age. The mudhole was about 30 feet from the house and in full view of the front door.

"On the front porch was a pair of boots fresh from use in six inches of manure at the barn. The porch was literally covered with mud and manure. The yard was strewn with everything. The children all ran for the house when they sighted me. The youngest, failing to make the porch with the others, began to cry. This brought the mother to the door. She was a slim woman of about 30 summers. She seemed a bit frightened at first but we were soon discussing the weather and the home site on the side of the hill. She brought two chairs and asked me to sit. The small child fresh from the mudhole crawled into his mother's lap with all the mud and dirt that could cling to him.

"Presently Mr. ———— came in, a red-haired, broad-shouldered, husky farmer. We fed the horses and went in to dinner. The children had a bench at the end of the table. The father looked them over and decided that Theodore should 'go wash under his nose.' Theodore after some argument obeyed, in form only. There was no table cloth on the table and the dishes were well worn and abused. But the table was well loaded with food, chicken in two dishes, ham, beef, potatoes, cabbage, lettuce and watermelon. Nearby was a cupboard nearly loaded with pies. There were two other guests, but the food was sufficient for half a dozen more. It was well cooked, but messy. I ate a good square meal and topped it off with as good a piece of raspberry pie as I ever ate. No one could have been more cordially received and entertained than I was.

"This family spent, in addition to table expenses and household operating expenses during the year, $50 for furnishings and equipment, $35 for a radio, and $15 for reading materials including the Literary Digest. They had fifty books in the home, including two religious and six agricultural. The husband and wife were both high school graduates and the husband expects to teach this fall. He has taught five years in the rural schools."

"The next farmstead although located in an out-of-the-way spot occupied a beautiful site at the foot of the hill. A set of well-kept buildings graced the setting which nature had provided. The lawn was planted as attractively as if a land-

scape architect had planned it. Every building and post was painted and all blended into a color scheme. The house was not so large, but it was substantially built.

"I went to the front porch, knocked and asked to stay for the night. The mother, a large portly woman, was not sure but would ask her husband. I agreed to take chances with the husband and started for the barn. Soon the husband was adjusting himself to the new-comer, who discussed the merits of the milking machine. Two little girls, 8 and 6, dressed in rompers, helped with cleaning the pails, which task along with the operation of the milking machine, was in charge of an intelligent appearing brother about 14. Chores over, we went in to supper, a good meal, ham, eggs, potatoes, hot rolls, apple jelly, etc., served on a clean white tablecloth under a group of electric lights. The meal over, we filled out our schedule after which we visited until eleven-thirty. All remained awake and we played games, told stories and talked about the vital problem they were grappling with, that of schools. They live so far from schools that the little ones can't go alone and the boy is going to high school next year. The boy is interested in bees and wants to come home at night from high school to help with the chores. The girls were as bright as could be—able to locate their home and others five miles down the road on the map which I had with me. It was an ideal family.

"The expenditures for goods ordinarily classed under advancement were seventh lowest of any of the eight homes visited yesterday. The family reported less time spent at reading than did any of these eight families. Both parents had only grammar school education. But three is no question about their standard of living or standard of culture. It was reflected in unmistakable ways other than expenditures, painted and well-kept buildings, modern equipment and a good table. It seems to be a part of the folk, a well-rooted, never-failing source of human culture."

The foregoing sketches indicate clearly some of the many ways in which separate families and individuals react to both similar and different social and economic situations. These different reactions show clearly and vividly the need for joint study of the most important factors involved in the problem, somewhat as suggested in the following proposed project:

NAME OF PROJECT: Relation of the farmer's ability to pay to the standard of living provided for the farm family.

LEADERS: ----------Rural sociologist
----------Agricultural economist

OBJECT: To ascertain and interpret facts with regard to the prevailing standards of living of farm families at different incomes and different economic levels.

PROCEDURE: a. Assemble all data available and prepare survey blanks or schedules suitable for obtaining estimates by the survey method of the quantities and costs of goods used for family living purposes and on the returns from farming and from other sources, during one year.

b. Select a locality or several localities of 500 or more farmers each where sentiment is favorable, particularly on the part of the leadership of the locality, and prepare the farmers of each locality for a farm to farm survey by a rural sociologist and a farm economist.

c. Conduct the field work simultaneously. The rural sociologist may obtain the data on family living from the home maker, and the agricultural economist the data on farm business organization and on the economic status from the farmer. Each field worker will be on the alert for points of interest to the other and to the general situation. They will confer on different families and match counterparts of schedules obtained daily.

d. Tabulate and summarize the data collected in such ways as to obtain one or more indices of the standard of living, as the total value of all goods used and the distribution of this value among the principal groups of goods, and one or more indices of the returns from farming and from other sources, as farm income, family income and other economic factors.

e. Determine by analyses and correlation the degree of relation between the two sets of data, that is, determine the relation of the standard of living of the farm family to the ability of the farmer to pay or to provide.

f. Determine by further analyses and correlation the relation of rational demands and desires of the farm family to the standard of living maintained and to the returns from farming.

g. Publish results to show (1) their bearing on the solution on the problem studied, and (2) the contribution made to the technique of study in the field of rural social science.

Purposely the details of the method or technique of conducting the proposed study have been omitted. While these are important they can be worked out satisfactorily when once the decision of the agricultural economist and the rural sociologist to conduct the joint study has been reached. Partial development of the proposed plan of study has been effected by J. A. Dickey in his study of "Family Wealth and Welfare Among

Farmers of a Typical Hill-Dairy Section of New York State." Separate schedules were used and two workers covered the field simultaneously.

Other problems probably equally pertinent to the general farming situation might be suggested for study. The one offered is chosen as having the most interest to both economists and sociologists in view of the fact that the two separate aspects of the problem have had already much attention and study. On the one hand the technique of determining the returns from farming by the survey method have been pretty well perfected. More recently the results by this method have been checked by cost accounting. On the other hand the standard of living (in terms of the cost or value of goods used annually) has been more or less clearly defined by the survey method. The checking of these results by cost accounting has been started. The next logical step, then, it would seem, is to correlate the two objectives in an attempt to "make better family living the final objective of all effort in behalf of agriculture."

Considerable thought and energy are being given to this specific step by other methods. The present studies by Zimmerman and Black of Minnesota, and by Anderson of North Carolina, are commendable in this respect. It is probable that the proposed plan of study, after a fair trial, may give way to that used in one or other of the two studies named above. Its use is urged, however, as the best means of giving due consideration to both the economic and the social situation in which the farmer and his family find themselves. A fair and unbiased trial of the proposed plan of study should do much toward placing and keeping the human element in the foreground in American agriculture.

DETERMINATION OF RURAL STANDARDS OF LIVING[1]

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All of you probably know that, under the terms of the Purnell Act, the agricultural deans of the Land Grant colleges are given discretionary power to request the financing of research projects which might be included under the general head of Home Economics. The committee of the American Home Economics Association which met to consider for what purposes such funds should be sought reported, in 1925, that one of the purposes should be the making of consumption studies.

The object of consumption studies was obviously to provide a background of facts to give light to home economists and extension workers as to what points they should stress in teaching desirable consumption habits and standards to students and farm housewives. Such light may be helpful in two ways: first, as a check on present consumption compared with the relatively few scientific standards of consumption as yet available; and second, as a means of advancing scientific standards one step forward. Under the first object, the aim is to know just what is being consumed, so that we may know how far practice is falling short of desirable or essential practices, particularly those in the field of nutrition. The second object is no less important:—to help us, by a knowledge of current practices, and by a comparison of practices of different families in the same community, and of different communities, both in the United States and elsewhere, to pick out the best practices and to make a beginning toward setting up further desirable standards.

The part of home economics in this matter is very obvious in the case of nutrition, but it is also of great importance in the field of the shelter, clothing, education, recreation and health of the family. Home economists recognize the importance of basing home economics instruction for consumption—and a great part of home economics instruction is instruction for consumption—on a knowledge of specific facts as to what

[1] This paper was read at the luncheon meeting of the American Farm Economics Association and the Rural Sociology Section of the American Sociological Society at St. Louis, December 30, 1926.

consumption is; and they recognize also only too well, as all of us do, how relatively little we know as yet about the best consumptive standards. As Professor Meicklejohn tells us in "The Liberal College," the problem of the best using of values is more difficult than that of their just distribution. "What shall we do with the world which is given us?" he asks, and adds, "That is, I think the hardest lesson which the teacher has to learn and teach." The work of comparative standards of living is as yet in its infancy.

Standard of Living Defined

There are nearly as many definitions of standard of living as there are economists and sociologists. The tendency in most of these definitions is to stress, and I believe to overstress, the importance of the material goods and services consumed. There is a very good explanation for this: such studies of standards of living as have been made in the United States and other countries have been made in terms of material goods. For the most part this has been necessary. Material goods are measurable. Desires and appreciations are difficult to measure, and to proceed to determine standards of living in terms of desires and appreciations leads one into the misty field of vague generalities and pious aspirations, against which Professor Taussig once warned students of consumption.

A comprehensive definition of standard of living should, nevertheless, include a reference to the desires and appreciations into which the material goods consumed must be translated before they can become a part of human life. Hence we define a standard of living as "those goods and services, and the manner of using them, which an individual or group considers essential for its well-being." Thus we include under "manner of using them" the appreciations of the individual or group, and under the expression "considers essential for its well-being" we include its concept of necessary, although perhaps as yet unrealized, attainment.

Such a definition of standard of living implies that the method employed to determine what it is in any given place must include, first, a study of goods and services actually consumed, and second, a study of the appreciations and ambitions

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All of you probably know that, under the terms of the Purnell Act, the agricultural deans of the Land Grant colleges are given discretionary power to request the financing of research projects which might be included under the general head of Home Economics. The committee of the American Home Economics Association which met to consider for what purposes such funds should be sought reported, in 1925, that one of the purposes should be the making of consumption studies.

The object of consumption studies was obviously to provide a background of facts to give light to home economists and extension workers as to what points they should stress in teaching desirable consumption habits and standards to students and farm housewives. Such light may be helpful in two ways: first, as a check on present consumption compared with the relatively few scientific standards of consumption as yet available; and second, as a means of advancing scientific standards one step forward. Under the first object, the aim is to know just what is being consumed, so that we may know how far practice is falling short of desirable or essential practices, particularly those in the field of nutrition. The second object is no less important:—to help us, by a knowledge of current practices, and by a comparison of practices of different families in the same community, and of different communities, both in the United States and elsewhere, to pick out the best practices and to make a beginning toward setting up further desirable standards.

The part of home economics in this matter is very obvious in the case of nutrition, but it is also of great importance in the field of the shelter, clothing, education, recreation and health of the family. Home economists recognize the importance of basing home economics instruction for consumption—and a great part of home economics instruction is instruction for consumption—on a knowledge of specific facts as to what

[1] This paper was read at the luncheon meeting of the American Farm Economics Association and the Rural Sociology Section of the American Sociological Society at St. Louis, December 30, 1926.

consumption is; and they recognize also only too well, as all of us do, how relatively little we know as yet about the best consumptive standards. As Professor Meicklejohn tells us in "The Liberal College," the problem of the best using of values is more difficult than that of their just distribution. "What shall we do with the world which is given us?" he asks, and adds, "That is, I think the hardest lesson which the teacher has to learn and teach." The work of comparative standards of living is as yet in its infancy.

Standard of Living Defined

There are nearly as many definitions of standard of living as there are economists and sociologists. The tendency in most of these definitions is to stress, and I believe to overstress, the importance of the material goods and services consumed. There is a very good explanation for this: such studies of standards of living as have been made in the United States and other countries have been made in terms of material goods. For the most part this has been necessary. Material goods are measurable. Desires and appreciations are difficult to measure, and to proceed to determine standards of living in terms of desires and appreciations leads one into the misty field of vague generalities and pious aspirations, against which Professor Taussig once warned students of consumption.

A comprehensive definition of standard of living should, nevertheless, include a reference to the desires and appreciations into which the material goods consumed must be translated before they can become a part of human life. Hence we define a standard of living as "those goods and services, and the manner of using them, which an individual or group considers essential for its well-being." Thus we include under "manner of using them" the appreciations of the individual or group, and under the expression "considers essential for its well-being" we include its concept of necessary, although perhaps as yet unrealized, attainment.

Such a definition of standard of living implies that the method employed to determine what it is in any given place must include, first, a study of goods and services actually consumed, and second, a study of the appreciations and ambitions

of the people. A careful study of goods and services actually consumed will reveal, to be sure, considerable information about appreciations. Alone, however, it is not enough. It must be supplemented by a more intimate knowledge of the people, based if possible, on personal acquaintance with them. The ideal implied in this definition therefore demands not only an accurate statistical analysis of goods and services consumed, but a similar analysis of their tastes and ambitions based on intelligent and sympathetic contacts with the families studied. In our investigation these two aims are treated as parallel and developed together, as will be shown later.

Methods of Determining the Standards of Living in Rural Iowa

Before the Purnell work was undertaken in Iowa, the United States Department of Agriculture, in cooperation with the Rural Sociology department of the Iowa State College, had made a rapid survey of the cost and standard of living. In this study estimates of various items entering into living costs, together with certain other information about the standard of living, were collected from 472 families and were summarized. The forms used for these United States Department of Agriculture surveys are doubtless familiar to most of you. A better general idea of the standard of living was thus available in rural Iowa than is available in most States, and we are fortunate in having these preliminary estimates made for us. For our own purposes, however, we felt we must have information as exact as it was possible to get it, and we are in consequence proceeding not by the survey, but by the account book method. With our present limited financial resources we set as our immediate goal the completed account books of fifty farm families with children of school age. We now have sixty-two who are cooperating We have confined our study to the neighborhood of Ames, but after this year we are planning to continue it in other parts of the state.

One of our greatest difficulties was to know how to select the families. We finally decided not to accept the generous aid of the local Farm Bureau, since their members represented usually a superior type of farm family, but to call at all the farm houses without exception on a given road or roads and

ask for the cooperation of the housewives. It is true that even by this method we get a somewhat selected group of cooperators. But the usual view that it is the more progressive who will cooperate finds very little to substantiate it in our experience. The human qualities making for cooperation are not very closely correlated with economic prosperity. Hence our group is as little selected as it is humanly possible to get it. We have found that about 60 per cent of eligible families—those with children of school age—are willing at least to start an account book.

It is clear that one great difficulty is to secure and continue to secure the cooperation of housewives in the sometimes rather wearisome business of keeping accounts. The governments of Norway and Sweden, which have made an extensive effort to collect account book figures from families, have resorted to the expedient of offering a money bonus for satisfactory books. Our own collegiate departments of Agricultural Economics in their work with farmers on farm management schedules are able to give the farmer such help in his business as is sometimes directly and obviously resolvable into a dollars and cents gain. We are able to offer neither bonuses nor very obvious economic assistance to our housewives, so our chief reliance for securing their cooperation must be either their interest in the objects of our study, or their willingness or desire to make and continue a friendly relationship with the investigator. Hence the personality of the investigator is of very great importance.

When the cooperation is promised, our first act is to get an inventory of all the food in the house, including all the groceries in the pantry and canned goods in the cellar. This inventory is more necessary for food consumption than it is for anything else because of the large quantities of vegetables, meats and fruits canned or otherwise stored, and because these amounts vary so much from year to year. It is of the greatest importance for us to know exactly the nutritive value of foods consumed.

The form of account book we use is very simple. We do not aim to teach accounting and we want to avoid tangling the housewife in a confusion of columns. Our account book,

therefore, has only four columns: Food Furnished by Farm; Food Purchased; Clothing; Other Purchases. There is also, of course, some fuel furnished by farm, but this is ascertained by inquiry in order to keep the bookkeeping easy. The housewife is not asked even to do her own additions. We collect the books at the end of each month and leave an alternate book with her. The accounting is all done in our office, records are made for our use, and the book with figures added is returned to the housewife next month when the alternate book is collected.

The housewife keeps her accounts in detail—five pounds of carrots, not "carrots;" one pound of rice, half a pound of coffee, not "groceries." Clothing is described and the name of the person for whom it is intended is given.

Difficulties in the Determination of Rural Standards

A. How are products furnished by farm to be valued? There are rather greater difficulties attending the measurement of rural standards of living than of standards of living in town and cities. Obviously, the rural families, being more scattered, are harder to reach. More important than this, however, is the difficulty, from the material side, of getting an exact account of the goods and services furnished by the farm to the family living, and of evaluating these goods and services properly in relation to goods and services purchased. Granting that they are accurately determined, should they be reckoned at wholesale prices, or retail prices or in some combination of the two? The usual practice in similar studies has been to evaluate them at prices as if sold by the farmer, or at prices expressing some compromise between the farmer's selling price and the retail price.

If these farm products are valued at wholesale prices, however, obviously the money value of the farmer's consumption is not comparable with the money value of that of the city worker, who buys all that he consumes. If valued at retail prices the "psychic satisfaction" of certain money values in the farmer's standard may be less than the psychic satisfaction of the city family's standard at the same amount of money. In other words, it is claimed that, whatever the physical satis-

faction, the farmer gets less psychic satisfaction from a quart of milk for which he can get only four cents than the industrial worker receives from a quart of milk for which he has paid eleven cents. This interpretation of psychic satisfaction would seem to have some relationship to a discarded labor theory of value.

Whatever the theory, however, the practical difference in psychic satisfaction seems to us to a large extent illusory. To be sure the farm furnishes the family a few things such as fruit in a prolific season, which might otherwise rot on the ground and be wasted, and which are not greatly appreciated. But with the increasing economic acumen of the farmer, production becomes more and more planned, and goods produced are challenged with relation to their value on the market. For purposes of exchange a farm family value their milk, obviously, at what they get for it in exchange; for purposes of consumption they value it at what they would have to pay for it for consumption. This may not have been true on old fashioned farms, far from a market, where many things were not marketable and the retail prices of farm products were not known; but as farms become business enterprises to a greater and greater degree, it is certainly increasingly true that the farm family value their own products for consumption just as the community values them. Again and again our farm housewives speak to us of their preserves, their butter, eggs, poultry and meat, not in terms of what they have cost on the farm but in terms of their retail price. In reckoning the value of these products, then, we have followed the practice of taking their value, not as if sold, but as if purchased by the farmer.

B. Study of the more intangible aspects of standards of living. Before beginning the investigation we made out a rather extended list of questions to include the specific information we desired to discover about the more intangible aspects of the standard of living of our farm people. In the preparation of this list we were guided in part by the schedules of the United States Department of Agriculture, previously referred to. We are also greatly indebted for suggestions to the well-known English study of certain aspects of standard of living of working people which was made in Sheffield and pub-

lished under the title, "The Equipment of the Workers." The questionnaire calls for information about the education and background of the family, the way they spend their leisure, their social and religious activities, their reading, their musical and aesthetic tastes, their political and social ideas, and their fundamental but unfulfilled desires, so far as these can be determined.

Our investigator through her monthly visits to the farm families has of course an invaluable opportunity to become acquainted with them. Many of the answers called for on the questionnaire she is able to fill in after one or two visits, without asking any specific questions. In the case of questions not so easily answerable from observation it is necessary to direct the conversation along particular lines in order to secure the information we desire. In no case, however, do we make an obvious business of asking questions, and notes are never made by the investigator in the presence of the family. We recognize that our families are doing us a service, and the chief return we can make to them is by way of our personal and friendly interest. We feel it extremely important to keep our relationship with them always on the friendly level.

In this connection also it is obvious that the intelligence, skill and personality of the investigator is of the very greatest importance.

Anticipated Results of the Study

At the end of the year's work we have not only specific consumption data but material for a number of significant correlations between the tangible and intangible aspects of standards of living. We hope through these correlations to make some progress towards the determination of standards of living in broader terms than those limited by the study of goods consumed alone. At the same time we shall have provided some means of evaluating the intangible aspects in terms of the tangible aspects. It is as yet too early, of course, to speak of our results except by way of anticipation; but we feel that as the study of standards of living progresses, as it must progress, students of the subject must work out an approach and a method which will lead more nearly to the ultimate end of studies of standards of living, the maximizing of satisfactions.

OBJECTIVES AND METHODS IN RURAL LIVING STUDIES [1]

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One of the effects of the Purnell Act has been to increase greatly the number of rural-living studies. The number is likely to increase still more. The pioneer work in this field has been largely done by Dr. E. L. Kirkpatrick and the Division of Farm Population and Rural Life of the United States Bureau of Agricultural Economics. It has been an unusually high grade of pioneer work. The discussion of the problem in Dr. Kirkpatrick's first study, "The Standard of Life in a Typical Section of Diversified Farming" (Cornell 423), was upon a very high plane, and the analysis of it that appears in the introductory pages of the later bulletins, especially U. S. D. A. No. 1382, "The Relation Between the Ability to Pay and the Standard of Living Among Farmers," and U. S. D. A. No. 1466, "The Farmer's Standard of Living," shows an excellent comprehension of the problem. Very fortunately the Home Economics group has taken up the problem and has made some important contributions to it. In the end, it will appear later, more of the detailed work in this field will be done by the Home Economics workers than by anybody else, and it is highly important that they take a part in the early developments so as to help direct their trend. The work of the Iowa State College group, started by Dr. Hazel Kyrk and now continued by Dr. Elizabeth Hoyt, is particularly noteworthy.

Most recently, the agricultural economists have been drawn into the problem somewhat; and it is highly important that they should be. It seems silly to make such an obvious remark as that the farm family enterprise is an organic whole, and any attempt to carve it into two parts and study the functionings of these parts separately is bound to lead to unreal conclusions. But a good deal of the work which has been done so far has sufficiently ignored

[1] Published with the approval of the Director as Paper No. 697 of the Journal Series of the Minnesota Agricultural Experiment Station.

this truth so that it is highly necessary to state it and stress it as much as possible. Furthermore, the very utilization of agricultural income itself is as much a problem in agricultural economics as is the problem of earning such income. The economics of consumption is as integral a part of economics as is the economics of production—although it must be admitted that one would not so conclude from the writings of some economists.

The entrance into the field of these two other groups has a number of important consequences. It means in the first place that Dr. Galpin, Dr. Kirkpatrick and their associates in the Bureau of Agricultural Economics will not have to bear so large a part of the burden of developing this type of research. It means, secondly, that the research work in this problem will no longer be so nearly standardized as it has been. One of the worst things that can happen to a new field of research is to have its methods standardized early, before much growth has taken place. This, it is now recognized, is what happened to research methods on some important phases of agricultral economics. There have been signs of such a danger in the field of rural life studies. Thirdly, what Bagehot called an "age of discussion" is ushered in, a period in which progress is made most rapidly as a result of vigorous discussion. It is with a view to provoking such discussion that this paper is written.

STANDARD OF LIVING [1]

It is significant that whereas most of the early studies in this field were called "cost of living" studies, today the term "standard of living" is being used increasingly to describe them, and an examination of the different studies in which it is used reveals the fact that it is variously used, often in the same paper. Three different uses of it can be singled out, as follows:

A. *A content of living that a population group more or less insists upon.* Professor H. J. Davenport's definition is of this type: "a level of consumption so fixed in habit that any falling short is felt as a privation." [2] Likewise Dr. Richard T. Ely's:

[1] This discussion of standard of living follows the lines of thinking of my colleague and former teacher, Professor John D. Black.
[2] Economics of Enterprise.

"The number and character of wants which a man considers more important than marriage and family." [3] Also the formal definition given by Dr. Hoyt in her paper at the St. Louis meetings: "those goods and services, and the manner of using them, which an individual or group considers essential for its well-being." Of these three, Professor Davenport's is most explicit as to why the various things making up the content of living are insisted upon—he attributes it to the force of habit (and custom, no doubt). But perhaps he is too explicit—perhaps some of the insistence is conscious and rational, even based upon an analysis of the problem; perhaps it takes its origin from observation of other groups faring better than it; perhaps it is based on bitter experience with trying to live upon an inadequate plane or level. Historically, habit and custom surely have been by far the strongest supports for a standard of living, as above defined. No doubt they still hold this position in most parts of the world. But with society in as rapid a flux as since 1910 in the United States, the other social forces named have played an important part.

But it is still possible to define standards of living as an "accustomed content of living," in which case all forces except habit and custom are ruled out. Some would surely do this.

Dr. Ely's definition is most explicit in stating the degree of insistence. Any given item in a content of living is part of the standard of living only if men will postpone marriage and family in the want of it. Most will agree that this is too explicit a statement. For example, one studying agricultural economy might say that a content of rural living such as needed to keep a proper number and quality of people on farms could be interpreted as the rural standard of living. All that Professor Davenport requires is that group *feels privation.* This is a better phrase than Dr. Hoyt's "considers essential," which suggests rationality too much. Probably this part of the definition can be left out altogether—let any degree of insistance whatever suffice.

No research projects in rural standard of living defined strictly in this way have thus far been undertaken so far as the writer knows. There is no reason why they should not be undertaken. Working along this line would involve discovering if possible

[3] Outlines of Economics.

whether any certain content of living can be defined which any rural group in any area insists upon with any degree of uniformity or firmness, and what the alternatives are in case these wants are not supplied—what parts of the content of living are dropped out or modified, To what extent marriage is postponed? To what extent size of family is affected? What changes in rate of rural migration follow? We might discover, as some are saying these days, that in a society such as ours there is no longer uniformity enough nor insistence enough to warrant our continuing the above concept in our stock in trade.

B. The second use of the term standard of living has been given to us by the Home Economics group—it is *a content of living which a population group needs or should have for its welfare.* The essence of the first definition is "what the group itself *feels* is necessary." The essence of this second definition is "what some supposedly better informed outside agencies *know* or *believe* to be necessary." The home economics workers have come naturally enough upon this use of the term. They have always spoken of "food standards," meaning an amount and balance of foods needed to keep the body and mind in good working condition; and similarly of "clothing standards" and "housing standards." These home economists propose to tell us eventually just what sort of food, clothing, heat, light, air, house furnishing and leisure allowance a farm family needs in order to live properly. Recently certain of the sociologists with true reforming zeal have taken to this concept of standard of living and propose to tell us all of the above, and in addition the allowance of amusement, social contacts, religion, education and health we should have.

The writer is disposed to make the following observations concerning this use of the term "standard of living:"

1. It would be more consistent with former home economics practice, and less likely to produce confusion of thinking in the minds of the many people used to the conventional definition of standard of living, if the expression *"living standards"* was used for this second concept.

2. It is very easy to exaggerate the possibilities of really scientific work along this line. Even with "food standards," while it is possible to determine what quantities of what food elements are needed for a human body of certain weight doing

a certain amount of work per day in an atmosphere of a certain temperature, it is not possible to say *how much that individual should spend per day for food.* Starches, proteins and vitamins can be bought in vastly different forms with a wide range in costs depending upon the habits, tastes and pocketbook of the individual. The most nearly scientifically accurate concept of a food standard in the economic sense is the minimum price at which the necessary food elements for such a standard can be bought in any form. But such a concept has only limited use except in collective wage bargaining. Most families in the United States spend considerably more than this amount on food. They have the money, and they want to spend some more of it in this way. Some spend much more in this way than others. Who can say how much is the scientifically right amount to spend on food under such circumstances? With clothing standards and housing standards, these same difficulties are present in more pronounced form.

There is a body of physical and chemical and physiological information that can be developed relative to the physical needs of the body, all of which is very useful in analyzing the actual consumption of individual families, especially of families near to subsistence living. Does the family have enough green food in its diet? Does it have enough air and light? But this does not get us very far in explaining or guiding the expenditures of families of the ordinary sort.

The empirical procedure of finding out how people in different circumstances are spending their incomes and what factors are associated with different ways of spending incomes, while much worth while doing, is, after all, only science of a sort.

Such information, summarized in the form of average absolute amounts, and average percentages of the total budget, spent for various purposes and under various circumstances, is of some value to the individual family in analyzing its own expenditures. But such averages can never serve as a complete guide. A "standard" which is to serve as a guide must surely be something a good deal better than the average. It should represent the practices of the best few, not a mixture of the practices of both good and bad, as in an average. Some way must be found of determining a wiser use of income than the average way of using it. Young women who have spent

four years in a home economics course who cannot do a better job of dividing their incomes between food, clothing, rent, etc., than the way that several hundred ordinary folks with the same income do it on the average, cannot be said to have acquired much of immediate personal value from their training.

C. Standard of living is being used increasingly these days simply to mean *content of living* without any reference to its being felt as necessary by the group, or being thought to be necessary for their welfare by somebody else. It is so used by Dr. Kirkpatrick for the most part in his later studies, for example, in "The Farmer's Standard of Living."[4] The only issue debated when this concept is in mind is what content shall be included, whether simply material goods and services as such, or the non-material in addition. There really is no debate here—all agree that both should be included, if some way can be found of measuring them. Some talk of putting it all on a basis of "psychic satisfactions." But this is impossible, as any psychologist will explain.

Those who make studies of this kind are for the most part concerned simply with describing accurately the content of living of the group investigated. This includes, of course, pointing out the variations between the content of living of different families, and as far as possible the circumstances that seem to be associated with these variations. Some attention is given to the use of the averages obtained as standards or guides, but this phase has never been really developed in any of the studies.

There can be no objection to studies made on this basis. The only question is as to the name chosen for them. Would it not be much better simply to call them studies in "rural living?" They surely are not "standard of living" studies in the most commonly accepted sense of that term, the one first named above. And in place of "standard of living" as a name for such a concept, why not use the simple term, "living content?" The next step will be to get a substitute for "standard of living" as a name for the first concept. The most serious evil connected with the problem is the confusing of the three above-named uses of the term standard of living.

[4] Bulletin 1466, page 2. Also see pages 1-2 of No. 1214, *"Family Living in Farm Homes,"* for an example of use in the second sense.

COST OF LIVING

The first rural living studies were generally called "cost of living" studies. The name seems to have been borrowed from somewhat related studies made among city families without asking serious question as to differences in objectives and methods. No doubt the first so-called cost of living studies made used costs as a measure of either content or standard of living. Although their main purpose was to present the details of how the poor working classes lived, a summary figure was also wanted that could be used for purposes of comparison between different families and groups. Be that as it may, in the United States at least, cost of living soon came to be associated in the public mind with wage controversies. Most of the studies were made by or for departments of labor or labor organizations, and were used as one of the bases for determining wages in collective bargaining.

Now agriculture has no highly important use of this kind for cost of living information. The prices of few farm products are determined by collective bargaining, and in the controversies over those which are thus fixed, the living costs of the farm family have figured little. The farmer is interpreted as selling a product, and not his labor. Nor in the larger issues between agriculture and the rest of the society, seldom have questions as to the cost of rural living figured prominently. Now that the National Bureau of Economic Research and others have begun to put the per-capita incomes of farm and urban workers in parallel columns, a series of comparable indexes of cost of living in the city and in the country would be desirable, but it is doubtful indeed if the proper method of constructing such indexes is to determine conventional cost-of-living figures for the two and compare them.

Secondly, the very concept of cost of living itself as developed in rural living studies is open to serious theoretical objections. The figure obtained is not a "*cost*" of living in the correct use of the term cost, but merely the *amount which was spent upon living*. How much it would really have *cost* the family to live is an entirely different question. The *amount spent upon living*, as all the studies show, depends largely upon the amount available for spending. Thus it would appear that

the *greater the income, in most cases the greater the "cost" of living!* The urban studies of cost of living, in contrast to the foregoing, proceed by working up a family budget which represents the minimum quantities and cheapest forms of food, clothing, shelter, etc., which will maintain the family in a state of health and upon the plane of comfort common to the group or some portion of the group, and then determine what such a budget costs at prevailing market prices.[5] This kind of cost of living figure has scientific value, as scientific values go in the social sciences. It is not necessary, of course, that this budget be a minimum budget, but the moment one departs from the minimum the door is opened wide for controversy. Another defensible budget for such a study is one representing a content of living which will keep up the supply of workers in the field in question. No cost of living studies in this, the only theoretically sound sense of the term, have yet been made for agriculture. Some are probably needed, for a number of our farming areas are close to the margin.

Cost of Living as a Measure of Living Content

Now comes the question of the use of the term cost of living as a measure of *living content.* The essence of this use is the reducing of all the items that make up living content—food, clothing, housing, health, hours of labor, education, church going, recreation, travel, leisure, interest in one's work, size of family, love of family, love of life itself, to a common monetary basis.

The theoretical objection to this is that living content is a matter of satisfactions received and not of outlay of money and effort to secure them. Using costs to measure living content is comparable to using farm expenditures as a measure of farm receipts.

Closely allied to the foregoing is the objection that money and effort outlay are measures of *input,* and living content is *output.* Differences in *efficiency* in the use of money and effort affect the *output per unit of input,* and hence the total output.

[5] See "Cost of Living in New York City" by the National Industrial Conference Board as a recent example of this type of study.

There is much talk in some of the bulletins with standard-of-living names as to the mistake of assuming that income in satisfactions can be measured in monetary terms. It might be argued, for example, that a quart of milk consumed in the city represents about the same "psychic satisfaction" as a quart consumed in the country, although the city family would pay 11 cents for it, and the farm family would sell it for 4 cents. But it is to be feared that this is carrying the psychic analysis too far. Few economists still believe that the psychic satisfactions of different individuals and different social groups can be reduced to a common basis of measurement. The psychologists have effectively blasted most of them out of that untenable position. We may as well abandon at the start all hope of ever measuring living content in terms of psychic satisfactions.

Suppose, confronted by such a dilemma, the research worker should say: Psychic income obviously can't be measured, and after all, input of money and effort and income in satisfaction are roughly proportional to each other, being constantly weighed against each other; so let us be satisfied with costs as a measure of living content. Then the question would arise how to determine costs. This is only to a degree easier than measuring psychic income. Of the items making up the content of living, only those which are bought in the market, and those produced on the farm and taken out of the supply for market, can be valued with reasonable accuracy. The proper value of the former theoretically is purchase price plus cost of transportation, and of the latter, sales price in the local market less cost of transportation. Valuing home-grown produce at city retail prices represents a shifting of base. The items making up the *content of living must all be valued at the farm*, or all *in the city*. It can be assumed that the cost of living wanted is of a *farm family living on the farm*. Value of any commodity or service in an analysis of this kind is its worth in the nearest competing alternative use. Goods bought for money can be assumed to be worth what the same money will buy in other uses—that is, the amount paid for them; similarly for goods sold. Goods consumed that were not grown for the market, such as ordinary farm garden produce, have no such basis of valuation. The farm is not in the business of

growing truck for the market—would not haul it to market if the family did not use it. The only alternative-use values involved are for the land, labor and capital involved in growing it. The cost of hauling groceries from town has the same sort of basis of valuation. The alternative-use values of the labor must be as of the time when the labor is done, and for the persons who do it. Usually the trip is not made especially for the purpose of buying household supplies. Keeping out eggs and milk for family use saves very few hauls the other way. How should the use of the farm dwelling be valued? Ordinarily the only immediate market alternative is rental as part of the farm. But how separate house rent from the rest? The usual procedure is to assume that the rent should be equal to interest, insurance, taxes, upkeep and depreciation based on the present value of the house, the value of the house taken being roughly the depreciated reproduction cost. A crude approximation at the best when applied to city dwellings, it may miss the truth by a hundred per cent with use of dwelling and use of land and farm buildings as inextricably intertwined as upon most farms. Would the family have an automobile to use if the farm did not need it? Would the farm, if the family did not want it? Or what degree of each of these situations prevails on any farm? Until these questions are answered, no separation between farm and family use of automobile can be made. Has unpaid family household labor any value? Yes, if it really has a chance to work out while maintaining desired relations with the family: or if something must be paid to overcome a preference for leisure. It is as reasonable to include the head of the household in a reckoning of this sort as it is the head of the farm enterprise in a farm business analysis. Who would presume to name in monetary units the value of preference for leisure? But leisure itself is part of the content of living. Its "cost" is the income that is sacrificed for it. Who wishes to suggest a means of determining this? Is not the number of children an important part of the content of living? What about measuring the sacrifice in behalf of them!

It thus turns out that cost of living itself is largely indeterminable. That which passes for it in common parlance is the

sum of values very roughly determined of some of the obvious items in it, such as food, clothing, shelter, etc.

Is a Measure Really Necessary?

The next question is, must we really have single unit of measurement of living content? It is all very fine, in social science research work, when complexes of the sort in question can really be reduced to a common basis of measurement. We can then express in terms of one unit, such as "cost-consumption unit," such differences as those between the living of various families and groups. But suppose that this cannot be done—are we then helpless? The writer believes that the studies made at Minnesota demonstrate that we are not, that nearly all the important objectives of rural living studies can be obtained without such a single-unit measure. Following are some of the major features of the Minnesota plan of attack:

1. Analyzing cash expenditures and living obtained from the farm separately. The circumstances determining the two are so different that most of the significant relationships are either buried or partly covered up by combining them.

2. Living obtained from the farm is expressed in physical units almost entirely. The values that might be assigned range from only somewhat to almost altogether arbitrary and specious. The relationships to income, size of family, and the like, can be worked out on a physical basis as well as on a value basis.

3. The major emphasis of the research is upon subdivisions of the budget and the individual items making up the content of living. It is assumed that the primary objective of such research is to *furnish a basis for the actual improvement of rural living.* Such improvement will not come about as a result of broad generalizations as to how income as a whole is spent or should be spent. It will come instead as a result of research, teaching and extension work, often aided by commercial agencies such as the farm press, and merchandisers of farm family supplies, upon such specific things as housing, home planning, kitchen conveniences, heating devices, home canning, selection of foods and clothing, care of the teeth, choice of an automobile, farm gardens, farm lawns, rural

schools and community recreation. This detailed type of work must be done mostly by home management specialists, farm engineering specialists, horticultural specialists and social service specialists, and very little by mere sociologists and economists.

For analysis of this kind, the classification carefully worked out by Dr. Kirkpatrick has great usefulness. No serious error is introduced by throwing all purchased food, or all purchased clothing, into one item on a purchase-price basis and working out cost-consumption units for each. These will have much value for comparative purposes. As for housing, it seems best to analyze it in only physical terms such as rooms, cubic contents, windows, etc.

4. Automobile is considered as one item, no attempt being made to value farm and family use separately. The analysis is solely in such concrete terms as make of automobile, age, mileage, pleasure trips, business trips, gas and oil bills, etc.

5. Farm receipts and farm expenditures are obtained as well as expenditures upon family living. The analysis works out the relation between farm receipts as a whole and expenditures for various purposes, as well as between total expenditures upon living and subdivisions of the same. Expenditures for machinery, farm improvements and the like are also analyzed and related to total cash receipts. It thus becomes possible to say how much of current farm income goes to current operating expenses, how much is reinvested in the farm business, how much is saved in other ways, and how much is spent upon current living and education of family. This phase of the analysis has turned out to be of almost major importance.

6. Proportion of cash expenditures for advancement is used as a rough basis of comparison of the planes of living of different rural communities and groups. It is not held that the relationships between the proportions spent for various purposes and total expenditures are very closely comparable with the so-called Engel's laws for urban families. In the first place, Engel's laws had to do with the relation between total income and the various divisions of the budget, not between total *expenditures* for living and the divisions of the budget. In the second place, the fact that the farm family obtains so large a part of its living in another way makes the relationships non-compar-

able. Nevertheless, the proportion of cash expenditures spent for advancement is indicative of the plane of living.

The relationship worked out which is most comparable to Engel's laws is that between cash receipts, less current farm operating expenses, and the amount spent for various purposes. On this basis, the proportion of income saved (by reinvestment in the business and otherwise) can also be related to size of income, much as in the Engel studies.

The generalizations from cost of living studies in which living from the farm is valued on one basis and purchased goods on another, are not properly comparable with Engel's laws. Food especially is undervalued on such a basis. It is more or less of an accident that the undervaluation of food is often almost exactly offset by the larger quantity of it consumed by farm people. Valuing food at the farm assumes that the "cost" of it (alternative-use value) alone determines how much is used. In truth, cost and "psychic satisfaction" determine how much is used—the one is weighed against the other. Thus the two valuations which are weighed against each other in the case of farm-produced foods and city-purchased foods are much different, especially on the cost side. Hence a *separate statement of relationships should be made for the two groups of foods.*

It is also advisable to make a special statement for automobile use and several other items.

7. Since many people are interested in the relative advantages of city and country occupations, a statement is prepared as to what it would cost to buy in the city a living which is as nearly as possible on the same relative plane. The practice of valuing food, fuel, housing, etc., at what they would cost in the city is proper for this particular use. It is recognized that many of the items in the two living contents are not capable of being compared in monetary units.

8. Since for the purpose of determining broad public policy with respect to agriculture, it is desirable to compare changes in money and real incomes in city and country, it is proposed to construct a comparable pair of indexes of cost of living for the two environments. From budget studies in the two areas being compared, will be selected as many items as possible

which are common to both. To this list will be added pairs of items which are different, but which can be converted to rough equivalents of each other. Thus the automobile which the farm family has may offset carfare and some of the disadvantages of location in the country. To these two lists will be applied the most nearly accurate cost rates that can be determined for the two areas. Such an index will only approximately indicate changes in the relative living costs in city and country; but it will be better to use such an index than to proceed as if costs of living were the same in both, as is altogether too frequently done.

In conclusion, it is important to note that this plan of attack on the problem has been worked out in close cooperation with the Division of Agricultural Economics. Further developments, especially the detailed studies of food, clothing, housing and the like, will call for a kind of cooperation with the Division of Home Economics and several other divisions in which they will do most of the work and get most of the credit.

IMPORTANCE OF METHODOLOGY

Progress in rural living studies has now reached the second stage in research development—the stage in which those who have been doing the preliminary work and trying out various methods normally get together and concentrate on methodology for a while before going back into the field for more data. The statistical analysis involved in such relationships as between income and living content needs further attention. Neither of these can be considered as independent variables. Both can be said to be in part dependent on other things. It would appear that income is much the more nearly independent. It also seems clear that under Minnesota conditions, cash receipts, especially if they can be corrected for the accidents of individual years, are the best indexes of ability to pay, or at least of willingness to pay. There has not been enough subsorting and sub-classification of data. Such methods, or the method of multiple correlation, would change many of the conclusions. For example, when *other things have been held constant,* mortgage debt and living content seem to be very sig-

nificantly related, which is contrary to the conclusions often obtained by simple sorting on one variable.

Series of coefficients of correlation are not dependable indexes of degrees of relationship when the measures of the variables are crude. A low coefficient of correlation between two variables may mean merely that one or both of them were inaccurately measured. It must be remembered that errors in measures do not offset each other in correlation coefficients—although they may in simple sorting on one variable. This point is especially significant if one of the measures is obtained by scoring methods, like Dr. Kirkpatrick's "social value." It is also significant when "cost-consumption units" are used to measure one of the variables.

It is appropriate to say in conclusion that probably too much energy has been spent thus far in efforts to develop composite units of measurement. This has the effect of making the work appear scientific to the unpracticed eye, but only to the unpracticed eye. It will be well for us to stick more to concrete facts simply and directly measured until we have developed a better understanding of them. Along with this urge toward composite units of measurement has been a still stronger urge toward broad generalizations—illustrated especially by the effort to check out Engel's laws in terms of rural living. Have we not been in too much haste to develop the principles of rural social science? Might we not better be content for a while yet with merely trying to get the facts as to how farm people actually do live? We have been as guilty at Minnesota as anywhere else in this latter respect.

BOOK REVIEWS

Production Economics, by John D. Black, New York; Henry Holt and Company, 1926. Pp. 975.

This book unquestionably represents a distinct forward step in the development and application of economic principles to problems of production. The central theme in economics during the past century has been distribution. Apparently it is because the author believes that "if the condition of mankind is to be greatly improved, some means must be found for increasing still further the per capita production" that he has seen fit to devote an entire treatise to expounding the economic principles applicable to production problems.

Setting up as the objective of economic science "the *economizing* of human energy, that is making it go as far as possible, getting the largest possible returns from it," the field of production economics is indicated by the following:

"The science of production is a science of combination. The various types of production elements may be associated in any number of different combinations, and in any number of proportions in each combination. The elements themselves vary as to the size of the unit, as to *'quality'* or *grade*, as to *place* available and *time* available, and as to *possession* availability. * * * The science of production must provide the basis for securing the right combination of the elements as to proportions, size, quality, time and place, all considered with reference to the particular type of product desired. The right combination is the one which secures the most economical utilization of all the elements. *To secure this combination is the goal of production economics.*"

The book is divided into six parts as follows: I. The Field of Production Economics, II. Specialization and Comparative Advantage, III. The Elements of Production and Their Combination, IV. The Operating Unit, V. The Coordination of Production, and VI. The Social Organization of Production. Agricultural economists will be most interested in Parts II and III and Chapter XXI of Part IV on The Size of the Business Unit.

The material presented under Part I is largely introductory and designed to acquaint the beginning student with the field and scope of economics, and with certain necessary concepts as to the nature of production, the various kinds of production and a brief sketch of the background of modern production. These preliminaries out of the way, the author enters at once upon a discussion of the Principle of Comparative Advantage and its significance in connection with the increasing amount of specialization in production. The use of this principle in economic literature has heretofore been limited almost entirely to discussions of problems of international trade and particularly in explaining how countries having different production resources and possibilities gain by an exchange of products. Dr. Black shows effectively how the same fundamental proposition underlies all specialization by areas or location as well as specialization as between persons.

The Principle of Comparative Advantage stated in terms of areas is as follows: "*Each area tends to produce those products for which its ratio of advantage is greatest as compared with other areas, or its ratio of disadvantage is least, up to the point where the land may be needed by some products less advantaged in the area in order to meet the demand for them at such prices as will come to prevail under such circumstances.* This statement provides for the comparison between different products in the same area, and between the same products in different areas, and also for the influence of the demand." A similar statement is made covering the application of the principle to persons. A series of illustrative cases are introduced to show how gains result from specialization and the direction and extent of specialization desirable under various sets of circumstances as to comparative advantage. The Law of First Choice is stated as a usefuly corollary of the Principle of Comparative Advantage as follows: "*Any products for which only a limited amount of suitable land is available, relative to the demand for it, will have first choice of this area.*" This explains for example why corn has a first call upon the time and resources of the farmers of the corn belt. The important factors responsible for territorial advantage are discussed in Chapter VII, emphasis being placed upon such things as climate, soil, availability of raw materials, geographical position and transportation, density of population, labor and capital supply and the like.

In Chapters VIII and IX on "Combination of Products and Specialization by Producing Units" and "The Choice and Location of Enterprises" the application of the Principle of Comparative Advantage is made to the practical problems encountered where a combination of products are turned out by one producing unit, such as a farm. The relationships between enterprises involved in combining enterprises into a business unit are separated into *the joint-product* relationship, the *supplementary* relationship and the *complementary* relationship. "In the *joint-product* relationship, the objective is the fuller use of the raw materials, the *materials worked upon;* in the supplementary relationship the objective is the fuller use of the other elements of production; of labor, the *active agent;* of the building and equipment, the *things worked with;* and the supplies, the *materials used up.* In the complementary relationship, the product of one enterprise becomes the *supplies* of another." It is pointed out that these relationships are themselves factors in comparative advantage so that we do not have corn alone produced in the corn belt but also oats, hay, pork, beef and so on, most of these being produced on every farm because of these enterprise relationships. The discussion of enterprise relationships is superior to anything which has come to the reviewer's attention on this subject.

In considering what enterprises to combine and in what proportions two methods of analyses are discussed; the method of substitution and the cost accounting method. "The first method consists of estimating in advance the effect on the total net income of the business of substituting possible new combinations of enterprises for the present combination. The basis of the cost accounting method is an historical study of the cost

of production of each of the products in the combination. On the basis of this information, an estimate is made of future costs of production of each of the products, and these costs are compared with the estimated selling prices. The final result is an estimate of the *relative profitableness* of the different products. The method chosen for principal presentation here is the method of substitution, both because it follows logically from the principles already presented, and because it is more simple, direct and practicable for most combinations of enterprises." The difficulties involved in the cost accounting approach to the problem include the determination of cost rates for non-cash items, such as family labor, and the allocation of these items to enterprises, the allocation of the cost of labor hired by the month, year or season to particular enterprises, dividing rent between different crops grown in a rotation, evaluating the complementary relationships between enterprises and others. The final argument against "the use of the cost accounting method for the purpose in question is that it is not necessary to go through the great labor involved in it. The method of substitution generally answers the questions for which an answer is sought as nearly as they can be answered in view of the uncertainties of the future, does it with much less effort, and by an approach which is direct and easily understandable."

One of the most helpful features of the book from the standpoint of agricultural students is the fact that the relation between economic science and the natural sciences is repeatedly indicated. The treatment of Diminishing Physical Outputs and of Diminishing and Increasing Economic Inputs is particularly significant in this connection. Those who are acquainted with the confusion surrounding the use and significance of the term "diminishing returns" will appreciate the careful separation of the physical and economic aspects of this problem. This distinction will aid the agricultural economist and his co-workers interested in such technical problems as livestock feeding, use of fertilizer and the like, in their search for a common meeting place where the knowledge of the technician can be combined with that of the economist in determining crop and livestock production methods and practices which are best adapted to particular circumstances. The need for cooperation between the production economist and those trained in the technical phases of agricultural production is repeatedly indicated in these chapters. This is especially important in view of the many unsuccessful attempts on the part of the economist or the technician to approach the job without regard to the necessity of analyzing the technical and economic phases in such a way that the results can be combined to meet new sets of economic conditions.

The concepts of "least cost combination" and "highest profit combination" are useful in a theoretical analysis of the problem of combining production elements and give the student a more complete picture of the complexities involved in determining how the best combination is affected by changes in prices or costs. These ideas will also prove extremely valuable in many research problems which can be approached in the way indicated by the theoretical analysis of input-output relation-

ships. A somewhat more elementary presentation of the material of these two chapters and the subsequent one on Individual Differences and their Combination will probably need to be made for most beginning students.

The chapter on the Size of the Business Unit is another which deserves the most careful scrutiny of the farm economist. The conclusion reached is that to determine the most profitable size of plant one must balance additional expenses involved in increasing the size, against the additional receipts obtained and thus "increase the size of the plant until the total profits tend to decrease, or increase less than enough to reward one for the extra effort involved in managing the larger plant." Again a method of "substitution" or "cut and try" is indicated, all of which suggests that the "new economic arithmetic" suggested by Prof. Carver in the Economic Journal, March, 1908, is gradually being developed.

The statement regarding differences of opinion as to the proper size of farms found on page 565 does not adequately present the views of those who emphasize the desirability of the highest output per "composite unit of labor and capital." A careful examination of Taylor's Outlines of Agricultural Economics (1925), for example, will show that the criterion of higher output per "composite unit of labor and capital" is applied, not to the problem of the size of the business unit, but to the problem of determining the right proportion between land area and working force which is similar to the problems discussed by Dr. Black in the chapter on Diminishing and Increasing Economic Inputs. Under the assumptions Dr. Taylor makes his statement is correct, but the issues on this point have usually been confused and Dr. Black's presentation will contribute toward a better understanding of it. His statement is particularly helpful because it shows that the problems involved in determining the proper size of the business unit hinge upon the element of management and are in reality much the same as those involved in combining other production elements, with the manager occupying the center of the stage when size of business is being considered.

The last two parts of the book dealing with the coordination of production and the social organization of production are more readable than much of the preceding two parts. The chapters dealing with maladjustments in production and their effects and control are very good. Perhaps they could be made more real and suggestive to agricultural students if some of the maladjustments involved in the present agricultural situation had been drawn on to a greater extent for illustrations in place of a part of the logical but somewhat technical presentation made.

The book is designed for use in a first course in economics in Business Schools or Agricultural Colleges. A large part of the book is admirably suited to this purpose. Some parts however are much too complicated for most beginning students and not likely to be appreciated except by advanced students and particularly by those who are acquainted with the development of farm management research problems and technique during the past decade. This is particularly true of parts of Chapters VII, IX, XI, XII, XIII and XXI. At least these chapters and preferably

the entire book should be studied very carefully by every research worker in the field of agricultural economics. Certainly an intimate acquaintance with the principles discussed in these chapters should be "required" of every candidate for an advanced degree in agricultural economics.

Jesse W. Tapp.

Bureau of Agricultural Economics.

The Commerce of Agriculture—A Survey of Agricultural Resources, by Frederick A. Buechel, Ph. D., New York; John Wiley & Sons, 1926.

This book is in fact what its sub-title suggests—"A Survey of Agricultural Resources." It is an economic geography in the field of agriculture, designed as the text book for an introductory course in agricultural economics. The book is introduced by a brief introductory chapter sketching the rise, fall, and revival of Malthusianism, and discussing the problems of population pressure, and land utilization. This chapter is evidently intended to motivate further study of the land and its resources.

The second part of the book is devoted to a description of the physical conditions—climate, physiography, soils, etc.—which constitute the environment of agricultural production, and to an analysis of the relation of these factors to the geography of agricultural production. This section of the book is very satisfactory from the standpoint of the teacher. It is a clear-cut, compact, well-organized, teachable, and stimulating presentation of the facts and principles of physical geography as they relate to the location of agricultural enterprises. The presentation of modern soil classifications is particularly good. The student is able to visualize the main climatic, physiographic, soil, and production areas of the earth, and to see the physical background of agricultural production in world perspective.

The third part, which in point of pages occupied, is nearly two-thirds of the book, is a catalog of the agricultural products of the United States and the world. Each product is treated historically and from the standpoints of geographic distribution and the physical and economic determinants of that distribution. A very brief statement of the marketing organization for each commodity is included. This statement is in most cases so incomplete that it adds little or nothing to the value of the text. Finally the position of each commodity is appraised from the standpoint of the trends of consumption, demand, and competition. A total of about sixty products are included. The more important products receive marked emphasis and special treatment. The author has not succeeded in entirely avoiding the encyclopedic monotony which is the inevitable result of treating three score consecutive subjects in accordance with a similar outline for each. The treatment of the important products, such as beef, wheat, dairy products, cotton, and tobacco, is interesting and stimulating, and presents the geography of the product and the physical and economic basis of its location. It is a serious question, however, whether the inclusion of brief statements descriptive of the physical, botanical, and geographical characteristics of such minor commodities as peppers, nutmegs, raspberries, and cassia bark accomplishes anything except to make

the text more comprehensive. The inclusion of a brief chapter on forest resources concludes this part of the book.

The fourth part consists of four brief chapters, a total of nineteen pages, devoted to the trade organization which is partly the cause and partly the effect of regional specialization in production. It points out in broad prospective the economic bases of trade and the evolution of modern commercial and industrial economy. It shows how the localization, agricultural production, and the organization of its marketing system grew out of this evolution. It outlines the history and discusses the economic bases of foreign trade and finally discusses the evolution and present status of the organization of the agricultural industry in the United States. Part four is not well integrated with the preceding sections of the book.

The maps in this book are with few exceptions reproductions from the work of O. E. Baker and his colleagues, as published by the U. S. Department of Agriculture. What a debt the authors of books of this type owe to Dr. Baker and his associates.

The organization of Dr. Buechel's book raises the whole question of what constitutes the best approach to an organized curriculum in agricultural economics, which in turn raises the question of its purpose and point of view. In our state colleges, we find various approaches to the curriculum in agricultural economics. The historical is a philosophic and social approach. When introduced by accountancy, or elementary farm management, the implication is that agricultural economics will present problems from the standpoint of the management of individual farm units. When introduced by general economic theory and organization, the implications are less definite. When introduced, however, by a course in agricultural economic geography, like that embodied in Dr. Buechel's "Commerce of Agriculture," the point of view and treatment implied for the curriculum is that of the industrial engineer. Agricultural economics has a long distance to go in appraising the relative advantages of these different points of view, of possible methods of organization, and possible content for the college curriculum in agricultural economics.

The assumption upon which the organization and content of this book rests is that the economic geography of agriculture is the proper initial approach to the study of agricultural economics. Institutions which hold this view should find Dr. Buechel's book a practical, usable, and valuable text for a one semester introductory course. This is the purpose for which the book is designed and one which no other book in the field is specifically adapted to fill.

I. G. Davis.

Connecticut Agricultural College.

Financial Management of Farmers' Elevators, by Gerald M. Francis. A. W. Shaw Company, Chicago, 1926. Pp. 104.

The most interesting and most helpful chapters of the book are based largely upon the "audit reports of 11 farmers' elevators in Illinois cov-

ering a period of seven years from 1918 to 1924, * * * 20 Illinois cooperative elevators for the single year 1924" and 39 Indiana farmers' elevators for 1923. The weakness of many farmer-owned grain companies in financial matters is clearly indicated. The major part of the capital stock of nearly all the companies studied was invested in fixed assets. Few of the companies had adequate surplus or reserves. This was probably due in major part to the desire of the members for dividends and the failure to appreciate the necessity of providing either a reserve or a surplus. The companies necessarily borrowed a large part of their working capital.

The audit reports studied are doubtless fairly representative. The analysis of the reports is satisfactory and the need for a better financial policy is clearly stated.

The book contains some material not directly related to the financial management of farmer-owned elevators. For example, about five pages are devoted to discussing the Federal Intermediate Credit bank. This is interesting information, but we finally learn that cooperative elevators do not utilize this source of credit. "The chief reason for cooperative elevators not using the Intermediate Credit bank's services is that their primary purpose is not to hold stores of grain for so-called orderly marketing but to stimulate competition in local grain buying."

An entire chapter is given over to "Farmers' Elevators and the Pooling Movement." The direct relationship between this chapter and the financial management of elevators is very slight. Relatively few of our farmer elevator companies, and relatively few members of these companies have exhibited any particular interest in the pooling of grain.

The author is either somewhat vague in his own mind regarding various matters not very intimately connected with the audit reports or else somewhat unfortunate in his manner of expressing his ideas. The following sentence which begins near the bottom of page 77 is an example of this defect: "More recent proposals to maintain the price of grain legislatively by creation of government export corporations and payment of subsidies from the public treasury have failed to sustain the support usually accorded to measures essentially sound in principle." Admitting the truth of the statement, the reader wonders why it is inserted. Does the author believe that the measures in question failed to receive support because they were unsound in principle, or does he believe they were sound but nevertheless failed to receive support?

Upon page 5 is an obvious error due to the previous error of another author. The farmer elevator companies of Illinois met at Springfield February 19, 1903, and organized the second state-wide farmers' grain dealers association. The first association of this kind was organized at Lincoln, Nebraska, January 22, 1903.

Another statement which is open to question is that cooperative elevator companies were organized to secure competition in local grain buying. Many farmers now living who took an active part in the formation of these early companies say that they were organized so that the farmers might market their own grain and thus secure what it was worth. The

farmers knew the price of grain at the terminal markets, and knew also freight rates and commission charges. They were much more interested in securing a large membership and large volume of business for their company than in establishing a competitive price for the benefit of non-members.

In spite of the shortcomings which I have mentioned, the book is well worth reading. The few errors are not vital. Managers and members of cooperative elevators need the information given in the chapters which deal with the Financial Management of Farmers' Elevators.

H. C. Filley

University of Nebraska.

Financing the Livestock Industry, by Forrest M. Larmer, New York; Macmillan, 1926; 327 pp. (Institute of Economics. Investigations in agricultural economics.)

"Financing the Livestock Industry" is an interesting analysis of the cattle, sheep and hog industries, and of the financial institutions and practices which have grown up in connection with these industries. It is written in pleasing style, and conveys the impression of having been prepared by one who is on terms of easy familiarity with practices in the livestock trade.

Early chapters of the book are concerned with the introduction of cattle, sheep and hogs into the United States and the development of the livestock industries prior to the World War. The westward migration of these industries is explained in terms of the expansion of the population, the cultivation of the mid-west prairies, and the receding boundaries of the free land areas. The author points out that credit requirements grew rapidly during the developmental stages owing to the increasing costs of production.

Following chapters describe the effects of the World War on the livestock industries and carry the discussion through the price recession of 1920-21. The difficult times experienced by livestock producers, particularly in the range country, and the services rendered by the emergency credit institutions, are vividly portrayed in this section.

In the closing chapters attention is devoted to the lines along which reformation must proceed. It is the author's belief that the methods of producing and of marketing livestock are capable of considerable improvement along lines which would have the effect of increasing the financial stability of the industry. He feels that existing financial institutions are able to grant adequate accommodation to livestock producers, but points out a number of changes which ought to be made in the practices of these institutions.

The book has the merit of discussing the financial institutions and practices of the livestock industry in terms of the productive processes to which they are related. With painstaking care, the author has differentiated the several phases of livestock production and analyzed the special financial requirements of each. Problems of the range country are clearly separated from those of the corn belt.

In placing major emphasis on the financial difficulties of the range country, where undoubtedly the stress has been greatest, however, the author apparently has overlooked an important problem of the corn belt livestock producer. The chief problem of the range country has been to obtain an adequate volume of credit. The corn belt, while occasionally troubled by inadequate credit facilities, in the long run finds a more important problem in the cost at which financial service is obtained. It is impossible, of course, to make a complete separation between the volume of credit and its cost; yet some livestock producers are hampered chiefly by lack of credit while others are more affected by the cost of credit. This subject should have been given a place in the discussion of financial organization.

The most notable defect of the book is its lack of data. Although the author has supplied an abundance of interesting and presumably accurate descriptive matter having reference to the financing of livestock, virtually no specific data are presented to support the author's conclusions. The impression is created, therefore, that the book is the result of experience and observation rather than a close study of assembled facts.

Notwithstanding these few and not very serious faults, this book is an excellent treatise of the subject of livestock finance. It is a comprehensive and penetrating analysis; and has the added charm of being extremely readable.

Fred L. Garlock.

Iowa State College.

A National Program of Forest Research, prepared by Earle H. Clapp. (Published by The American Tree Association, Washington, D. C., for the Society of American Foresters, 1926.)

This volume comprises the report of the Special Committee on Forest Research of the Washington Section of the Society of American Foresters. The 207 pages of text are devoted mainly to the elaboration of an outline for a national program of forest research, together with a brief consideration of the existing agencies and facilities for research in that field. The volume includes an appendix presenting an outline of a proposed organic act providing more fully for forest research in the United States Department of Agriculture. There is also a brief consideration of the status of this phase of research work in foreign countries.

The section devoted to forest economics is of greatest interest by reason of its close relationship to the field of agricultural economics. This vital phase of forest research has been greatly neglected in the United States, but recently a division of forest economics has been established in the Forest Service. Of primary interest to students of agricultural economics is the proposed development of studies for the purpose of indicating the profitableness of reforestation in various regions, the relative desirability of forest uses as compared with use for farming, and the economic aspects of effective coordination of the two uses in community development.

L. C. Gray.

Bureau of Agricultural Economics.

Soil Exhaustion as a Factor in the Agricultural History of Virginia and Maryland, by Avery Odell Craven, Urbana, University of Illinois, 1926. Pp. 179. (University of Illinois studies in the social sciences, V. 13, No. 1, March, 1925).

The author states in the preface that a few studies dealing with the subject "soil exhaustion" as a factor in history have been attempted in the European field with rather disappointing results. "The difficulty of securing exact data as to yields from any given unit over a sufficient period of time, the great variety of factors affecting the returns from the soil from year to year, and the impossibility of separating 'exhaustion' as a factor in social change from the other factors at work, have rendered the task hard and the conclusions reached rather uncertain. What has been done so far, only serves to call attention to a neglected factor in history and to suggest some probable results of its influence. The American field offers like difficulties and the materials for any definite study are lacking."

The purpose of the volume is to study the general conditions surrounding agriculture in a certain period, to follow the methods employed, and so far as possible to note the results produced in the light of the present-day understanding of soil fertility and soil depletion. From this study the author hopes that the importance of this factor in the history of Virginia and Maryland may be pointed out and that a basis will be established from which the more important questions as to why the men of this section employed destructive measures in their agriculture may be answered. He thinks a few general conclusions may be drawn from the study.

"In the first place the part played by soil depletion in this section must be recognized as constant and important in shaping not only the course of agricultural development but of the larger social economic order as well. Throughout the colonial period and afterward, agriculture was based upon a single crop produced by exploitive methods which caused yields to decline and lands to reach a condition in which the planters declared them 'exhausted.' Abandonment took place on a wide scale and the planters always accepted expansion as a matter of course. * * * The destructive practices of the Old South were, in fact, in the beginning merely the normal product of frontier conditions. * * * Practices begun by the frontier were continued under the influence of markets and government. * * * Here as in most places markets and profits determined to a large extent the agricultural practices in vogue. * * * The story of soil depletion in this region becomes but a normal chapter in the story of the farmer and his lands wherever he may be in time and place."

An excellent bibliography is appended.

Mary G. Lacy.

Bureau of Agricultural Economics.

Economics of Production of Grade "A" (Tuberculin-Tested) Milk, by V. Liversage, Agricultural Economics Research Institute, University of Oxford. New York, Oxford University Press, 1926. Pp. 58.

In making this study by the survey method the author visited thirty-

eight farms, covering a wide area extending into Berkshire, Oxfordshire, Buckinghamshire, Hampshire, Surrey and Dorset. The holdings ranged in size from a small holding of 50 acres carrying 12 milking cows, to mixed farms of 1,000 acres with milking herds of about 70. In his introduction the author says:

"There is a convention obtaining at the present time that producers of Grade A (T. T.) milk should receive a price 3d. per gallon above that of the ordinary product. One of the questions which it is sought to answer in the present article is whether this amount is sufficient compensation for the extra expense and trouble involved. So far as expenditure alone is concerned the figures adduced show that the question must be answered in the affirmative, though the actual pecuniary advantage depends upon whether the calculated figures for the extra labour requirement or the estimates of the producers themselves are accepted. * * *

"The figures produced in connexion with this report will show what a preponderating part in the cost of clean milk production is taken by the manual labour involved."

Mary G. Lacy.

Bureau of Agricultural Economics.

The Farmers' Campaign for Credit, by Clara Eliot, New York; D. Appleton and Company, 1927. Pp. 312.

The author states in the preface of this book that its purpose is (1) to analyze the credit difficulties of the farmers, (2) to see how and to what extent they have been justified in their sense of being discriminated against by the financial mechanism of the country, and (3) to evaluate the measures that have been taken or proposed to meet these difficulties.

The book begins with a chapter devoted to the historical background of the farmer's relation to the credit and currency system of the country. This historical sketch is followed by an analysis of the mortgage credit problem and a description of the Federal Farm Loan System. Two chapters are then devoted to the short-time credit problem with special emphasis laid upon the relation of the Federal Reserve System to this problem. This brings the story up in a rather sketchy fashion to the agricultural crisis of 1921. Two long chapters are then directed to a discussion of this crisis with particular emphasis to its financial aspects. After an analysis of the various rural credit bills which were introduced into the 67th Congress, and after an exposition of the Agricultural Credits Act of 1923, the book is concluded by raising some of the more important unsolved issues that the recent rural credit agitation has brought to the surface.

The author makes an excellent beginning by pointing out very clearly in Chapter 1 that the rural credit problem is not a new one in this country. Certain aspects, in fact, go back to colonial days. Falling agricultural prices then, as now, inevitably brought forth their credit and currency schemes for reform. It is well to point out how prone farmers have always been—whether in 1740, 1836, 1896 or 1920—to

confuse their price problems with their credit problems. Credit problems the farmers have had in the past, and still do have, and these credit problems, no doubt, are intimately connected with the prices of agricultural products. But to assume that all unsatisfactory price situations can be remedied by tampering with the credit structure of the country has been one of the most prevalent weaknesses of farm leaders.

The classification of credit into long-term, short-term and intermediate is employed in the book. The treatment of the short-term credit problem is the most satisfactory. In discussing mortgage credit, little attention is paid to the relation of this problem to that of tenancy and the question of land values. A considerable part of the impetus of the farmers' campaign for credit was a desire to stimulate farm ownership and no discussion of mortgage credit should omit this fact.

Again at the close of the discussion of the Federal Farm Loan System and the various state rural credit systems, the author suggests that state action might have met the mortgage credit problem if the Federal government had not stepped in. The idea is conveyed that there is more danger that the Federal Farm Loan System will become "a victim of national party politics" than there is that a state rural credit system will be hampered by politics. The recent experience in South Dakota, where the state rural credit system is at the present time under investigation and where one of the men who was in control of this system is now in the penitentiary, seems hardly to substantiate this point of view.

In discussing the short-term credit problem, the author raises the vital question "Has our commercial banking system been sacrificed on behalf of better credit facilities for agriculture?" The answer seems to be that although no great danger has thus far resulted from the special agricultural provisions of the Federal Reserve Act, still an entering wedge for further changes partial to agriculture has been made. In other words, the integrity of our commercial banking system at the present time depends upon administration rather than upon legal restrictions. Our banking laws have been tampered with so much that there is now no legal safeguard against abuse. The way is now open whereby a good deal of paper that is in no sense commercial can get into the portfolios of the Federal Reserve Banks.

In discussing the agricultural crisis of 1920-1921, the author draws heavily upon material compiled by the Joint Commission of Agricultural Inquiry. The conclusion is reached that the Federal Reserve Banks were not responsible for the agricultural depression, and that these institutions did nothing to keep agriculture from securing its share of the credit resources of the country. The legislative history of the Agricultural Credits Act of 1923 is clearly set forth, but no attempt is made to give a detailed exposition and analysis of the Federal Intermediate Credit System.

This book makes a good beginning toward a larger study that is crying to be done; namely, a thorough study of the position of the farmer in our financial system. Excellent as this book is, however,

as a survey of the farmers' campaign for credit, it attempts to cover too much ground in too short a space to treat adequately any one of the outstanding credit problems of the farmer. Its contribution to rural credit literature, therefore, consists in bringing together and unifying the data that tell the story of the farmer's struggle for what he has conceived to be credit equality with other industries. It does this task very well indeed.

Claude L. Benner.

University of Delaware.

Research and the Land, by V. E. Wilkins. London: H. M. Stationery Office. 1926. (British Ministry of Agriculture and Fisheries.)

From the title one might suppose this publication to be a contribution in the field of land economics. It is, in fact, a general official review of all the recent progress of research work in the field of agriculture and horticulture in Great Britain and northern Ireland. A previous review of somewhat smaller scope was issued some four years ago. In addition to the text, comprising 324 pages, the volume includes a list of the twenty-three research institutions in Great Britain, the seven research divisions of the Ministry of Agriculture of northern Ireland, and the seventeen "advisory centers" of Great Britain, together with the principal subjects covered by each institution. An appendix includes a list of publications emanating from the personnel of the various institutions during the period 1922-1925 inclusive. The only official center for research work in agricultural economics is the Institute for Research in Agricultural Economics of Oxford University. However, all of the fourteen advisory centers in England and Wales include economics in the list of from three to five subjects on which they are concentrating. In Scotland and northern Ireland no institution reports work in this field.

Readers of the Journal of Farm Economics will be interested primarily in the brief section devoted to agricultural economics. Apparently the evolution of work in this field has followed somewhat the same path of development as in the United States, with perhaps a lag of two or three years in the stage of emphasis, but also with a distinct tendency to adapt the subject to the special conditions prevailing in the British Isles. Present emphasis is still on cost studies of the intensive variety involved in cooperative accounts with a small number of farms, but with a tendency toward more extensive methods. Systematic work in the field of marketing and cooperation is being undertaken by the newly established Markets and Cooperation Branch, of the British Ministry of Agriculture and Fisheries. A few projects also have been carried on at Oxford and Aberystwyth. Probably the most distinctive research work is the study of the possibilities of developing supplementary household and village industries, the results of which are about to be published in four volumes. It is interesting to learn that this thorough study indicates a distinctly unfavorable outlook and limited scope for the development of such industries.

L. C. Gray.

Bureau of Agricultural Economics.

RECENT STATE BULLETINS [1]

Compiled by Mary F. Carpenter, Library, Bureau of Agricultural Economics, U. S. Department of Agriculture.

ARKANSAS.

Arkansas. College of Agriculture. Extension service. Crops to replace a million acres of cotton in Arkansas in 1927. (Ext. Circ. 227. 1926)

CALIFORNIA.

California. Department of agriculture. Monthly bulletin, v. 16, no. 2, February, 1927.

Partial contents: Trend of the dairy industry. p. 42-43. Future production of head lettuce in California. p. 45-50. Continued demand for licensed warehouse receipts. p. 81-82. Bureau of fruit and vegetable standardization. p. 96. Federal state agricultural statistics. Summary of California annual livestock report. 1927. p. 98.

Fletcher, L. J., and Kinsman, C. D. The tractor on California farms. (Calif. Agr. Exp. Sta. Bul. 415. 1926.) Analysis of farm power costs. p. 20-28.

Voorhies, E. C. The California poultry industry: a statistical study. (Calif. Agr. Exp. Sta. Bul. 413. 1926)

Wellman, H. R. Lettuce. (Calif. Univ. Col. of Agri. Agr. Ext. Service. Circ. 5. 1926.) Part of a series of California crops and prices.

COLORADO.

Sanborn, N. D. Harvesting and marketing cantaloupes and honeydew melons in the Arkansas Valley of Colorado. (Col. Agr. Exp. Sta. Bul. 312. 1926)

FLORIDA.

Florida. Department of agriculture. Quarterly bulletin. v. 37, no. 1, October, 1926.

Contains the annual report of L. M. Rhodes, commissioner, Florida state marketing bureau, which includes statistics of shipments of fruits and vegetables by counties for 1925-26, and prices and costs of production of the citrus crop.

INDIANA.

Overton, M. H. Increasing farm profits with more early potatoes in northern Indiana. (Ind. Purdue Agr. Exp. Sta. Bul. 305. 1926)

[1] Received since last issue of the Journal.

IOWA.

Holmes, C. L. Iowa agricultural outlook for 1927. (Iowa. Agr. Exp. Sta. Current Economic Series Report 5. 1927)

Hopkins, J. A., Jr. Economic study of the cattle feeding enterprise in Iowa. (Iowa Agr. Exp. Sta. Bul. 242. 1927)

This is divided into several parts under the following headings: Development of the enterprise; Market contacts; Factors determining the efficiency and profitableness of fattening cattle; Cattle prices and the demand for beef.

Hopkins, J. A., Jr. Statistical study of the prices and production of beef cattle. (Iowa. Agr. Exp. Sta. Research Bul. 101. 1926)

KANSAS.

Green, R. M., and Howe, Harold. Year-to-year and seasonal fluctuations in hog prices. (Kans. Agr. Exp. Sta. Circ. 132. 1926)

KENTUCKY.

Card, D. G. Market outlook for Kentucky strawberries. (Ky. Univ. Col. of Agri. Agr. Ext. Div. Circ. 204. 1927)

Jesness, O. B. Cooperative marketing and price control. (Ky. Agr. Exp. Sta. Bul. 271. 1926)

Johnson, E. C. Kentucky livestock auction sales organizations. (Ky. Agr. Exp. Sta. Bul. 270. 1926)

Nicholls, W. D. Control of farm expenses. (Ky. Univ. Col. of Agr. Agr. Ext. Div. Circ. 203. 1926)

MARYLAND.

Metzger, J. E. Agricultural progress in a typical Maryland community, 1865-1924. (Md. Agr. Exp. Sta. Bul. 285. 1926)

MASSACHUSETTS.

Jefferson, L. P. Market outlet for Massachusetts apples. (Mass. Agr. Exp. Sta. Bul. 231. 1927)

"This monograph is part of the general study of the economic aspects of the New England apple industry undertaken by the Massachusetts Experiment Station."

MICHIGAN.

Gardner, V. R. Varieties and locations as factors in apple production. (Mich. Agr. Exp. Sta. Special Bul. 161. 1927)

Newton, R. W. Michigan farmers' tax guide. (Mich. Agr. Exp. Sta. Circ. Bul. 100. 1927)

MINNESOTA.

Holt, B. A., and Combs, W. B. Judging creamery efficiency. (Minn. Agr. Exp. Sta. Bul. 231. 1926)

Minnesota. University. Department of agriculture. Extension division. Profitable dairying. (Special Bul. 112. 1926)

Much of this material is based on cost records from a group of farms in Steele county.

MISSOURI.

Brannen, C. O., and Gromer, S. D. Taxation of farms in Missouri. (Mo. Agr. Exp. Sta. Research Bul. 93. 1926)

Thomsen, F. L., and Hensley, H. C. Possibilities and limitations of cooperative marketing. (Mo. Agri. Exp. Sta. Circ. 150. 1926)

MONTANA.

Montana. College of agriculture and mechanic arts. Extension service. Basic facts about Montana's agriculture. (Bul. 81. 1926)

Well illustrated with maps and charts.

Vinke, Louis and Arnett, C. N. Beef cattle in Montana. (Mont. Agr. Exp. Sta. Circ. 133. 1927)

Pages 30-38 of part 2 cover the costs of beef production, and part 4 is devoted to the "Relation of beef production to marketing."

NEBRASKA.

Reichart, E. L., and Davis, H. P. Cottage cheese manufacture in dairying plants. (Nebr. Agr. Exp. Sta. Bul. 217. 1927)

Pages 11 to 13 discuss the marketing and costs of production of cottage cheese.

NEW HAMPSHIRE.

Potter, G. F., Rollins, H. A., and Latimer, L. P. Packing apples in the standard farm produce box. (N. H. Univ. Ext. Service. Ext. Circ. 64. 1926)

NEW JERSEY.

Allen, W. H. Egg production, monthly costs and receipts on New Jersey poultry farms, November, 1925-October, 1926. (N. J. Agr. Exp. Sta. Hints to Poultrymen, v. 15, no. 4, Jan., 1927)

NEW MEXICO.

Fite, A. B. Preliminary report on the growing and marketing of fresh tomatoes in New Mexico. (N. Mex. Agr. Exp. Sta. Bul. 157. 1927)

NEW YORK.

Kendrick, M. S. An outline of the New York State system of taxation. (Cornell Univ. Col. of Agr. Ext. service. Cornell Ext. Bul. 152. 1926)

Kendrick, M. S. An index number of farm taxes in New York and its relation to various other economic factors. (N. Y. Cornell Agr. Exp. Sta. Bul. 457. 1926)

Powell, Whiton. How to make and use an operating statement. (Cornell Univ. Col. of Agr. Ext. Service. Cornell Ext. Bul. 156. 1927)

A new bulletin by the author of "How to make and use a balance sheet." (Cornell Univ. Col. of Agr. Ext. Service. Cornell Ext. Bul. 132. 1926)

NORTH CAROLINA.

Kaupp, B. F. Operation of four-unit poultry plant for commercial year 1925-1926. (N. C. Agr. Exp. Sta. Bul. 251. 1927)

Shay. W. W. Corn and hogs vs. cotton for profit. (N. C. Agr. Ext. Service. Ext. Folder 26. 1927)

NORTH DAKOTA.

Fuller, O. M., and Benton, A. H. Great Lakes-St. Lawrence deep waterway; its value to North Dakota. (N. Dak. Agr. Exp. Sta. Bul. 204. 1927)

Newton, R. W., and Benton, A. H. Some tax problems of North Dakota farmers. (N. Dak. Agr. Exp. Sta. Bul. 203. 1926)

North Dakota. Agricultural college. Extension division. North Dakota farm program for 1927. (Ext. Circ. 74. 1927)

Willard, R. E. Some farming changes in southwestern North Dakota, 1922 to 1925. (N. Dak. Agr. Exp. Sta. Bul. 201. 1926)

Willard, R. E. Cost of producing crops in North Dakota. (N. Dak. Agr. Exp. Sta. Bul. 199. 1926)

OHIO.

Ohio. Agricultural experiment station. Bimonthly bulletin, v. 12, no. 1. Jan.-Feb., 1927. Contains the following by J. I. Falconer:

Less land area required to feed Ohio horses. p. 28-29.

Ohio farm and city valuations as shown by index numbers, 1915 to 1925. p. 29-30.

Labor requirements for corn production in 1907-1912 vs. 1920-1924. p. 31.

Index numbers of production, wages, and prices. p. 32.

Ohio. Agricultural Experiment Station. Forty-fifth annual report for 1925-26. (Bul. 402. 1927.) Rural economics reports include:

Feed and other requirements for pork production. p. 103-104.

Depreciation on dairy cows. p. 104-105.

How livestock are marketed from Ohio. p. 105-106.

Budgetary distribution of the cost of family living on Ohio farms. p. 106-108.

Relation of tax value to sales value of farm land. p. 109.

On page 114 are given cost account figures of the orchard on the Clermont County Experiment Farm.

OKLAHOMA.

Oklahoma. Agricultural experimental station. Agricultural outlook for Oklahoma, 1927. (Okla. Circ. 66. 1927)

OREGON.

Hurd, C. J. A discussion of the prune problem containing recommendations to growers and dealers. (Oreg. Agr. Col. Ext. Service. Bul. 396. 1927)

PENNSYLVANIA.

Pennsylvania. Department of agriculture. Some phases of taxation in Pennsylvania. (Bul. v. 9, no. 24, Dec. 15, 1926. General order 437)

Pt. 1—Rural taxation in Pennsylvania, by F. P. Weaver.

Pt. 2—Wealth, income and state taxes paid by various groups of businesses in the state, by C. L. King.

Lynn, W. C., and James, D. M. Pennsylvania as a market for potatoes. (Pa. Dept. of Agr. v. 9, no. 10, May 15, 1926. Gen. Bul. 428)

RHODE ISLAND.

Corbett, R. B. Some economic phases of the fruit industry in Rhode Island. (R. I. Agr. Exp. Sta. Bul. 207. 1927)

"Contains material on production, distribution and consumption of apples in Rhode Island. In the section on distribution some attention has been given to peaches."

SOUTH CAROLINA.

Owens, C. A. Preparing asparagus for market. (Clemson Agr. Col. Ext. Div. Circ. 87. 1927)

TEXAS.

Texas. Agricultural Experiment Station. Texas agricultural outlook for 1927. (Circ. 45. 1927)

VERMONT.

Hooker, P. K. Studies in Vermont dairy farming. II. Enosburg, Franklin county, area. (Vt. Agr. Exp. Sta. Bul. 256. 1926)

A farm business analysis.

WASHINGTON.

Bean, R. P. Developing new land under irrigation. (Wash. Agr. Exp. Sta. Popular bul. 136. 1926)
Reclamation costs on the station farm. p. 18-24.

Washington. Agricultural experiment station. 36th annual report . . . June 30, 1926. (Bul. 208. 1926)
Contains reports from the Division of Farm Management and Agricultural Economics on various studies made during the year, some of the results of which have not yet been published.

WEST VIRGINIA.

Armentrout, W. W. Roadside marketing for West Virginia farmers. (W. Va. Agr. Exp. Sta. Circ. 45. 1927)

Armentrout, W. W. Adjusting agricultural production and distribution in the Clarksburg area to meet home market demands. (W. Va. Agr. Exp. Sta. Bul. 212. 1926)

WISCONSIN.

Luther, E. L. Ten years of successful institutes. (Wis. Univ. Col. of Agr. Ext. Serv. Circ. 209. 1927)
This includes the development of institutes devoted to problems of cooperative marketing.

Wisconsin. Department of markets. Biennial report . . . for the years 1925-1926. (Bul. v. 8, no. 1, 1927)

PUBLICATIONS OF THE BUREAU AGRICULTURAL ECONOMICS

Issued January 1-April 15, 1927

DEPARTMENT BULLETINS.

1435. Economic aspects of citrus fruit growing in Polk Co., Fla., by C. R. Swinson and W. C. Funk. A summary of the performance of 100 farms for the years 1917-1922 inclusive, with other data, presented so that the bulletin is useful for subsequent years and for other localities.

1444. Cotton prices and markets, by A. B. Cox. A detailed description of the several types of markets and the effect of their activities on prices. One large section is devoted to an analysis of the demand for cotton. Not a source of cotton price series.

1445. Services in cotton marketing, by A. B. Cox. Covers the essential services in the satisfactory delivery of cotton from farm to mill—ginning, classing, warehousing, standards, classing, inspection and regulatory work, assembling and distribution, and financing.

1446. Cost of producing winter wheat and incomes from wheat farming in Sherman Co., Oregon, by R. S. Washburn and H. D. Scudder. A three-year survey of costs and incomes, 1920-22, in an area where wheat produced under dry land conditions on a large scale is the main source of income. The analyses show physical quantities to which prices and cost rates for other years may be applied.

1447. Cost of using horses, tractors, and combines on wheat farms in Sherman Co., Oregon, by R. S. Washburn and H. D. Scudder. The area is one where large power units are necessary, and the question of whether or not tractors are economical was a live one in the period studied (1920-1922). One-fourth of the farmers were using tractors, and more of them were using combines. The purpose of the study was to show what could reasonably be expected in the way of costs of using combines, horses and tractors and to present some of the important points to be considered in the selection of combines and power units.

1455. Incomes from farming and cost of apple production in the Shenandoah Valley, Frederick Co., Va., by C. R. Swinson. The record of 48 orchard farms for five years, 1916-1921, with other relevant data. Commercial apple production in this area represents a shift in type of agriculture which is still going on.

1458. The trend toward a more effective use of the land as shown by the yield per acre of certain crops, by B. O. Weitz. An analysis of Census, Department of Agriculture, and State data on crop acreages and yields. "It appears probable that the general trend of acre-yields of the crops will continue upward for a considerable period."

1460. Testing wheat for protein with a recommended method for making the test, by D. A. Coleman, H. C. Fellows, and H. B. Dixon. The increasing use of protein determinations as a basis for payment of premiums for wheat suggested an exhaustive survey of the methods used for making such determinations. These are discussed in this bulletin. Laboratory technique.

1480. Reliability and adequacy of farm price data, by C. F. Sarle. A critical analysis and appraisal of the farm-price data of the Department, which should be studied by everyone who uses the farm-price series regulary issued. "Many students would like to know what is back of farm-price data—how and when collected, and their most obvious limitations before trying to use them in some important economic problem." This bulletin is a companion to Statistical Bulletins 14-17 to be available soon.

STATISTICAL BULLETINS.

14. Prices of farm products received by producers. North Atlantic States. All the available "farm prices" of the Department for these States, by States and by commodities. Contains monthly farm prices by commodities as far back as these have been collected, December 1 farm prices of crops, January 1 farm prices of livestock, farm prices of crops and livestock by crop reporting districts as reported to the Census Bureau for the 1925 census of agriculture, farm wages, and land values both with and without improvements. Nos. 15, 16, and 17 are in press, and contain the same data for the rest of the States.

18. Statistics of hogs, pork, and pork products. Production, stocks, movement and prices in detail.

19. Carload shipments of fruits and vegetables, 1924 and 1925. Points of origin of 10 or more cars in either year arranged by counties within the States, and the number of cars shipped from each point, by commodities.

FARMERS' BULLETINS.

1509. Bean growing in northern Idaho, eastern Oregon and eastern Washington, by Byron Hunter. Approved practices and methods in growing beans in these areas. A revision of Farmers' Bulletin 907.

1525. Effective haying equipment and practices. For northern Great Plains and Intermountain Regions, by L. A. Reynoldson and C. D. Kinsman. "It describes the improved equipment that is used for handling hay in different sections, effective practices that are employed and the organization and handling of haying crews on different ranches. It shows what some men are doing to reduce haying costs."

DEPARTMENT CIRCULARS.

377. The farm real estate problem, by E. H. Weicking. The changes in farm real estate values annually, 1920-1926, as shown by the Censuses and for intermediate years by the estimates of the Department, and changes in farm ownership as indicated by the replies from farmers and real estate dealers compiled by the Division of Land Economics. These latter indications are tentative in character, being the first fruits of an annual inquiry only two years of which have been studied.

407. Membership relations of cooperative associations, by J. W. Jones and O. B. Jesness. Members of two cotton and two tobacco associations, all large-scale, were asked certain questions regarding their associations. A large part of the difficulties of these associations seemed to be due to lack of information or to misinformation regarding the purposes and the management of the associations.

416. Demand, marketing and production of Oregon and Washington prunes, by B. H. Critchfield. Prices received for the type of prune grown in Oregon and Washington were little more than the cash outlay of the producers for harvesting and orchard operations in 1926, and have been unsatisfactory for some years. This circular presents the preliminary results of a study to find out why, by canvassing consumer demand, dealers, and production statistics for that and for competing areas.

MISCELLANEOUS CIRCULARS.

83. Standard tobacco sizes, by F. B. Wilkinson. A handbook of U. S. standard sizes, with miniature charts, and description of apparatus for sizing.

95. Unclean seed wheat causes loss of millions. A leaflet showing the advantages of clean wheat and three types of cleaning machine.

96. Crop report regulations. The usual annual circular giving dates of the reports to be issued during 1927, and rather more than usual of the laws relating thereto.

97. Cooperation in Agriculture, compiled by Chastina Gardner. "A selected and annotated reading list, with special reference to purchasing, marketing and credit, including only works printed in English." Arranged by authors. Also classified.

101. The Agricultural outlook, 1927. The fifth report of an increasingly used series.

NOTES

State Workers Attend Outlook Conference

Twenty-eight men from the State Colleges of Agriculture, mostly research and extension workers in Farm Management, spent the week of January 24-28 in Washington assisting in the preparation of the fifth annual outlook report of the Bureau of Agricultural Economics. These State representatives came to Washington in response to letter sent to the Directors of the Experiment Stations by Lloyd S. Tenny, Chief of the Bureau of Agricultural Economics, and letters sent to the Directors of Extension by C. B. Smith, Chief of the Extension Service.

The purpose of asking the State representatives to come to Washington was summed up in the following way by Mr. Tenny during the first of these conferences:

"We, here in Washington, know that our Outlook statements will be most useful only where considered in the light of conclusions relating to local problems reached by research workers in the States. We also believe that unless the workers in the State Colleges, especially those in the Extension Service, know our outlook statements, what they contain, and what is back of them, they can not fulfill the purpose for which they are intended. We feel that the extension workers in Farm Management and Agricultural Economics are the logical people to disseminate the outlook reports to the farmers of the different States. I, personally, wish that some way could be found of having with us each year at our outlook conferences representatives of both the extension and research departments of every State College."

In addition to the work in connection with the preparation of the outlook report other conferences were held during the week for the purpose of discussing plans for Farm Management work, and as a means of enabling State and Department workers to get better acquainted with each other's viewpoints and activities. Sources and uses of economic information, extension methods, and farm records and accounts studies were given attention at these conferences. H. M. Dixon, Extension Service, presided over the extension conferences.

The discussions on extension methods were led by A. B. Graham, M. C. Wilson and H. W. Hochbaum of the Washington office of the Extension Service. In these discussions the importance of keeping in mind fundamental teaching principles and of having a definite plan of action were stressed. Conclusions based upon studies showing results from different extension methods were presented.

The discussions on farm records and accounts were led by Andrew Boss, Minnesota; H. C. M. Case, Illinois, and J. B. Hutson, Bureau of Agricultural Economics. The place of detailed and account book records in research and extension work was discussed. The objectives and methods of conducting accounting projects and uses of accounting data were emphasized.

L. H. Bean, Bureau of Agricultural Economics, led a discussion on the future level of commodity prices and the end of the farm price disparity. V. B. Hart, New York, gave the "farm price" talk as he gives it to farmers in New York. Factors to keep in mind in attempting to forecast the commodity price level for the years just ahead were mentioned. The changes that have taken place in the past in agricultural prices relative to the general price level were brought out.

The discussions on sources of economic information were led by W. F. Callander, J. Clyde Marquis and C. F. Sarle, Bureau of Agricultural Economics. The source of facts for economic extension work, the adequacy and reliability of farm price data and methods used in making specific studies were discussed.

C. R. Arnold, Ohio; C. L. Holmes, Iowa; H. C. Hensley, Missouri, and Andrew Boss led discussions on the use of economic information. The use of bulletins, circulars, press notices, conferences and public meeting in the dissemination of market outlook information were given attention. Specific plans were presented. At the close of the conferences the State workers made recommendations regarding the use of market outlook information as follows:

"1. That the material contained in the Outlook and the conclusions reached at the Outlook Conference be given the widest possible publicity through the Extension Service of the Agricultural Colleges of the States.

"2. That this can best be done by a series of conferences held in counties or districts where local adaptations of the program can be made.

"3. That these Conferences should be made up of representatives of the agricultural leaders of the area in which the conference is held, including representatives of the organized agricultural interests. The program should be arranged by representatives of the Extension Division and the leaders of the community and conducted by representatives of the Extension Service of the College in each State.

"4. That, wherever possible, such conferences be preceded by a series of well-considered press releases treating of the subject matter to be discussed.

"5. That a copy of a State Outlook report based upon the National Agricultural Outlook, and prepared in cooperation with subject-matter specialists be available to all delegates at such conferences.

"6. That, after the conference, a series of follow-up press releases and other forms of publicity should be used with a view to keeping the matters discussed uppermost in the minds of the people. The Committee believes that such a follow-up program represents one essential and effective way of bringing this information into practical application.

"7. We recommend that the conference program arranged by the Missouri College of Agriculture be submitted to the Extension Directors of the various States for consideration in the development of a nation-wide program of putting the information contained in the National Outlook into the practice of the farmers who make up the agricultural industry. It is not expected that this can be developed into a uniform program but that it will be suggestive to the various States in the development of their programs."

In addition to the above, State workers in attendance and participating in the discussions included the following: Thomas H. Summers, Colorado; A. W. Manchester, Connecticut; P. L. Putnam, Connecticut; Lynn Robertson, Indiana; Thomas P. Cooper, Kentucky; Donald W. Reed, Maine; B. E. Carmichael, Maryland; J. E. Metzger, Maryland; F. H. Branch, Massachusetts; J. T. Horner, Michigan; H. C. Woodworth, New Hampshire; Allen G. Waller, New Jersey; G. W. Forster, North Carolina; J. T. Sanders, Oklahoma; F. P. Weaver, Pennsylvania; G. E. Adams, Rhode Island; J. C. McAmis, Tennessee; L. P. Gabbard, Texas; C. C. Taylor, Virginia; J. J. Vernon, Virginia; R. M. Turner, Washington, and A. J. Dadisman, West Virginia. Of State representatives fourteen are engaged in Extension work, seven in Research work, and seven divide their time between Research and Extension, largely being administrative officers.

Institute of Research Methods in Rural Sociology

An institute on research methods in rural sociology was conducted by the committee on rural social organization and agencies essential to a permanent and efficient agriculture, at Purdue University, April 4-8, 1927. This institute was authorized by the executive committee of the Land-Grant College Association, at the request of the joint committee on projects and correlation of research.

Twenty-one experiment stations were represented by one or more workers. Representatives of church colleges, theological seminaries, the Institute of Social and Religious Research, Western Reserve University and other institutions and agencies were also in attendance.

The program of the Institute fell into four divisions of procedure:

1. Presentation and discussion of the current projects in rural sociology of the various experiment stations.
2. The work of committees which digested reports and formulated recommendations on projects and procedure.
3. Formal presentation of specific topics dealing with subject matter and research methods.
4. General discussions of the problems confronting the experiment stations and rural sociology workers.

Dr. E. C. Gelke, Western Reserve University, and Dr. C. Luther Fry, New York City, presented the subject of "The Use and Limitation of Statistical Method in Rural Social Research." Dr. Robert E. Park, University of Chicago, presented "Scientific Method in Social Research." "Comparison of Rural Economic and Sociological Research" was presented by Prof. O. G. Lloyd, Purdue University, and by Dr. H. C. Taylor, Institute of Land Economics, Northwestern University.

Dr. G. I. Christie in a striking paper urged the necessity of specific knowledge concerning farm population in order that extension workers may more effectively approach and conduct the extension programs.

Progress in Farm Management Extension

The farm management extension program in the various States showed a continuation of progress in 1926. Improvements are shown in the organization of subject matter to make its application to the farmers' problems specific, and in the introduction and use of improved extension methods to reach more areas and more people. There was a 10 per cent increase in number of contacts in 1925 over 1924 and about 12 per cent increase in 1926 over 1925. The States of Tennessee and Oklahoma took up the work during the year, making a total of 33 States with organized programs. J. C. McAmis is in charge of the work in Tennessee and T. S. Thorfinnson, formerly assistant farm management demonstrator in North Dakota, has taken charge of the work in Oklahoma. M. D. Jones, farm management demonstrator in Maine, resigned September 1, 1926, and Donald W. Reed has taken his place. R. M. Turner accepted the position of farm management demonstrator in Washington November 1, 1926. H. A. Berg was appointed December 1 to assist R. R. Hudelson in Illinois with the farm accounting project. During the year C. R. Arnold of Ohio took graduate work at the University of Minnesota, and W. F. Knowles of New Jersey took graduate work at Cornell University.

The following items are given as an indication of what is going on in the various States, although space will not permit citations that may be made to many other States:

Illinois had more than 1,200 completed farm accounts for 1926 and 75 counties starting the work in 1927. The ultimate goal, says Mr. Hudelson, is to have a minimum of 30 accounts completed in each county of the State.

In California, 783 farmers started enterprise accounts on 10 commodities in 15 counties, and 619 completed such records in 1926. For 1927 this work is in progress in 27 counties on 14 commodities.

Oregon had a farm management demonstration team in junior club work in 1926 that took first place in State competition and fifth at the Pacific International Livestock Show.

New York conducted 19 farm management tours and Illinois 11.

Agricultural outlook conferences were held in 25 localities in Missouri with an average attendance of 80 persons.

An analysis of financial records of the members of young farmers' clubs in Connecticut who have been in the work for a period of three years showed an increase in farm income for the three years of $999.09 per farm for those whose farm incomes were below $2,000 at the start of the demonstration. Their gross income increased from $3,483.78 to $5,459.01 per farm.

Iowa conducted 119 meetings on the hog situation in 22 counties in October and November with an attendance of 2,172. A monthly sheet on the hog situation and another entitled "Agricultural Economic Facts" are issued to several thousand farmers.

In Ohio 52 meetings on the wheat situation before fall seeding and 69 on the hog situation in September and October were conducted. In 51 counties 1,069 economic information leaders have been selected and a training school held for them in the early part of last year. These men were supplied with seven economic information letters during the year. The plan is for them to pass this information on at their community meetings.

The teaching of simple farm accounts in seventh and eighth-grade rural schools is reported as a part of the course in agriculture or arithmetic in 61 counties in Ohio and 39 counties in Iowa. Over 15,000 boys and girls were reached. Illinois has just prepared a complete set of material for the use of teachers and pupils in this work.

Indiana and New York conducted state-wide farm inventory campaigns the first of this year.

Colorado has just released a report entitled "Recommendations Adopted by the San Luis Valley Agricultural Conference, Alamosa, Colorado, February 24-25, 1927," that is a good example of economic extension work dealing with program building.

The 63 organized farm-management clubs in Kansas held a total of 242 meetings with an attendance of 5,670. At these meetings analysis was made of records kept by members and discussions given on timely economic material supplied by the Department of Agricultural Economics of the Agricultural College.

Missouri tried out a method of mail survey for obtaining farm business records in five counties in 1926 and is extending this to 20 counties this year.

A correspondence course of five lessons on farm records and farm management was given in Minnesota during the winter of 1925-26. Of the 516 who sent in enrollment cards for the course, 364 completed the first and 200 completed the fifth lesson.

Institute of Cooperation Announces Third Session

The third summer session of the American Institute of Cooperation will be held in cooperation with Northwestern University School of Commerce, at Chicago, June 20 to July 16.

Arrangements have been made with more than 130 authorities on the various phases of cooperation in all parts of America and Europe to give special lectures. Several special features have been prepared, including a joint meeting of the national association of attorneys of cooperative associations and the association of cooperative accountants.

In the general sessions the major emphasis of this year's institute will be placed as follows:

First Week: Problems of cooperatives engaged in marketing grain, cotton and tobacco. Chairman, Dr. John D. Black, University of Minnesota, St. Paul, Minn.

Second Week: Problems of cooperatives engaged in marketing livestock and wool. Chairman, Dr. E. G. Nourse, Institute of Economics, Washington, D. C.

Third Week: Problems of dairy cooperatives. Chairman, Robert W. Balderston, Secretary Interstate Milk Producers Association, Philadelphia, Pa.

Fourth Week: Problems of cooperatives engaged in marketing perishable fruits, vegetables and poultry products. Chairman, Porter R. Taylor, Pennsylvania Department of Agriculture, Bureau of Markets, Harrisburg, Pa.

These and other commodity marketing problems will be dealt with in each case from the first stages of business set-up to the final functions and relationships of the respective cooperatives. Some slight changes may be made in the above weekly program.

In addition to the regular lecture program, five courses open to advanced college students are offered for credit in North western University: Terminal Market Functions and the Co-operative Association, The Organization and Membership Problems of California Cooperative Associations, Price Objective of Cooperative Organizations, Problems of Cooperative Dairy Marketing, and Cooperative Management Problems. These courses will be in charge of professors and economists prominent in the cooperative movement.

The first course will deal with the methods of handling, storing and selling farm products in terminal markets, with special reference to Chicago. The course on California cooperatives will be given by an economist who has been making a special study of these organizations for five years. Under the general subject of price objective, an examination will be made of the price theories of various cooperative leaders and executives. At the same time consideration will be given to the purposes animating the formation of associations and the determination of their form and general plan of operation. The various types of dairy marketing organizations will be studied in the course of problems of cooperative dairy marketing. In the course of cooperative management, attention will be given to typical problems of practical management as handled by present-day cooperative organizations.

Persons desiring catalog or detailed information and persons desiring to enroll should address communications to Charles W. Holman, Secretary, American Institute of Cooperation, 1731 Eye Street, Washington, D. C.

During Farmers Week at Ames, Iowa, in February there was organized the Iowa Farm Business Association for the promotion of educational and service work in farm organization and management. The membership is composed largely of farmers who have previously participated in the farm business short courses at the College. The Association has an executive board whose members represent the different type-of-farming areas in the State and will serve as an unofficial advisory committee for the Department of Agricultural Economics.

American Country Life Conference

The Tenth Annual Conference of the American Country Life Association will be held at Michigan Agricultural College, East Lansing, Michigan, August 1 to 4. It will be followed by the International Country Life Conference, August 4 to 6.

The topic to be discussed is Farm Income and Farm Life. The American Farm Economics Association is cooperating in the planning of the program as well as in the symposium by outstanding specialists on the conference topic. These articles, edited by Dr. Dwight Sanderson, are appearing in a book entitled "Farm Income and Farm Life," and are to be the basis of the conference discussion. Master farmers, farm women, and specialists in economics will be prepared to lead the discussions.

For programs and later information, address the American Country Life Association, 1849 Grand Central Terminal Building, New York City.

A joint study of the sources and amount of income and amount and purposes of expenditures of farm families in Jackson, Meigs, and Vinton counties, Ohio, is being made by the Ohio Experiment Station and the Bureau of Agricultural Economics. The area selected is one in which a low level of incomes and expenditures prevails.

Progress in the arrangements for the World Census of Agriculture in 1930 has been very encouraging, according to L. M. Estabrook, Director, who was back in this country in April, en route to Canada and other countries of the American continents, after visiting countries in Europe, Western Asia, and Northern Africa. Interest is keen and the best cooperation is promised.

Under the head of "Agriculture" the International Economic Conference at Geneva, May 4, will discuss (1) present position of agriculture compared with pre-war conditions; (2) causes of present difficulties in agriculture; (3) possibili-

ties of international collaboration between producers' and consumers' associations; (4) continuous international exchange of information concerning agricultural conditions, scientific and technical research, etc.; and (5) development of the purchasing power of agricultural producers.

To provide a basis upon which apple producers may make plans for the future constructive development of the industry, the Bureau of Agricultural Economics and many States are cooperating in a broad survey along the following lines: (1) Analysis of the markets for apples; (2) demand and preferences for definite varieties; (3) competition between varieties and regions; (4) probable shifts in the sources of supplies for definite markets; (5) careful inventory of the present status, recent trend, and probable further developments in each of the important commercial producing areas, and (6) other related problems. Some progress has been made with the statistical and historical phases of the survey and field work will be done this summer. M. R. Cooper is designated as Executive Secretary for the Bureau.